

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Wildfire Safety Division
California Public Utility Commission

**COMMENTS OF THE GREEN POWER INSTITUTE
ON THE WMP QUARTERLY REPORTS**

September 30, 2020

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Pursuant to the September 8, 2020, email from the Wildfire Safety Division inviting comments on the WMP quarterly reports, the Green Power Institute, the renewable energy program of the Pacific Institute for Studies in Development, Environment, and Security (GPI), provides these *Comments of the Green Power Institute on the WMP Quarterly Reports*.

Introduction

GPI reviewed first quarter WMP reports from SCE, SDG&E and PG&E. Notably these reports approached and perhaps even exceeded the length of the 2020 WMPs. The 2020 WMP process marked the launch of a new WMP filing structure, including new narrative and data requests, and is slated for additional revisions and refinements in order to clarify informational requests and level of detail expected from the Utilities. The First Quarter Report lengths, content, and associated party comments should also be considered in the process of developing the next iteration of the WMP filing structure and reporting requirements, as well as data requests and proposed central database and platform. In particular, reviewing multiple quarterly report filings, annual updates, and Remedial Compliance Plans each year, which are as extensive as the 3-year WMPs, introduces challenges to connecting all the relevant data and information provided in each of the filings. GPI encourages the exploration of ways in which planned changes to the WMP filing structure can aggregate quarterly, annual, and triennial WMP filings into fewer compliance filings that effectively and efficiently centralize plan content and allow more thorough review. This could include combining the Class B deficiency responses currently addressed in the first quarter report with RCP filings, and reducing extensive quarterly reports to biannual, mid-year and annual update reports.

We provide comments regarding insights from the First Quarter Reports on the WMP development process, and regarding specific Class B Deficiencies for each IOU.

Responses to SCE-4 and PGE-6 should improve WMP clarity.

SCE and PG&E were requested to explain discrepancies in ignition-reduction projections in Deficiencies SCE-4 (SCE risk reduction estimation requires further detail) and PGE-6 (Discrepancy between ignition reduction projections), respectively. Both SCE and PG&E address misunderstandings in reported ignition risk reduction estimates that arise for the use of a variety of metrics. PG&E explains that these different risk-reduction estimates correspond to different “programs, geographies, and denominators (PGE 2020 First Quarter Report, p. 114).” SCE provides similar clarifications including explaining the basis for risk reduction metrics such as timeframe, weather assumptions, and geographic region. SDG&E provides risk reduction percentages for each planned initiative (SDG&E First Quarter Report, Table 3) but it is unclear whether these estimates are normalized to their service territory.

GPI recommends that the responses of SCE and PG&E to SCE-4 and PGE-6, respectively, be taken into consideration in the process of refining WMP report and data requests (including narratives, tables etc.). Specifically, risk reduction estimates should include, but not be limited to, estimates based on each WMP initiative, and the 3-year WMP plan as a whole, for each year and 3-year total of the WMP, for HFRA, HFTD and Utility territories as a whole. All risk reduction estimates should be readily interpretable based on publicly available inputs, assumptions, and denominators.

The First Quarter Reports give the first indication of sub-HFTD granularities.

The WSAB and WSD have identified the need to explore initiative efficacy, including risk reduction and RSE, at a more granular level in order to better prioritize WMP initiatives and implementation. To date, references to circuit level and sub-circuit level granularities have been posed as a much-needed advancement in wildfire risk assessment and mitigation that can enable targeted initiative implementation and ultimately optimize the cost effectiveness and impacts of risk-reduction plans. However, these references have yet to take the form of a central and actionable discussion regarding what granularities and accompanying methods and tools are needed to animate the risk assessment and mitigation implementation envisioned for the WMP.

SCE, PG&E and SDG&E's First Quarter Reports provide some of the first references to specific granularities that are anticipated in the IOUs' proposed risk assessment models and that will guide future wildfire mitigation planning. SCE states that "The WRRM will provide asset-level risk scores that can be aggregated at the circuit-segment, circuit, or other user-defined geographies (SCE 2020 First Quarter Report, p. 202)." Additional information on the capabilities of the WRRM, its inputs, analytical granularity, and anticipated role in wildfire mitigation planning are provided in response to deficiency SCE-5. PGE described their use of two models to quantify the impact of ignitions. A third model, Technosylva, is mentioned but the analytical granularity is not provided (PGE 2020 First Quarter Report, p. 150). The response suggests current VM and grid hardening models prioritize at the circuit level (PGE 2020 First Quarter Report, p. 191). SDG&E describes their plan for quantitative risk assessment and mitigation, stating:

...in 2020, SDG&E began developing a consistent tool (Wildfire Next Generation System (WiNGS)) to utilize risk modeling and RSEs to conduct alternatives analysis and guide the selection of optimal solutions. WiNGS is still under development with pilots that are helping SDG&E evaluate capital hardening alternatives at a segment level...(SDG&E 2020 First Quarter Report, p. 19)

These references provide new insight into developing quantitative wildfire risk and RSE assessment tools at analytical granularities ranging from asset level to circuit-protection level. Given this information and the emergent status of the proposed risk assessment methods, models, and tools, it would be prudent to initiate a discussion in the WMP that is focused on exploring the necessary granularities required to prioritize and optimize wildfire mitigation initiatives. For example, grid hardening activities such as asset and conductor replacement may require analyses at the asset or line segment level, whereas enhanced inspections, enhanced VM, and fuels management may be more suited to a circuit level or less granular analysis.

The Distribution Resources Plan (DRP) provides a prime example of this divergent model development, where all three IOUs independently developed Integration Capacity Analysis models that subsequently required substantial vetting and cross analysis to

ensure each model provided similar analytical capabilities, accuracies at equivalent granularities, and standardized, easily-interpretable outputs. We acknowledge that diverse and independent model development can also provide benefits. However, without some guidance the resultant outputs and outcomes of the three IOUs independently developing proprietary wildfire risk assessment models may lead to challenges including, but not limited to: (1) varying inputs, assumptions, outputs, and analytical granularities for wildfire mitigation initiative prioritization; (2) difficulty gaining access to proprietary model inputs, assumptions and methods needed for model vetting (i.e. verification and validation); (3) differences in the granularity each IOU uses for WMP initiative prioritization; and (4) incongruent model outputs that make it challenging to compare models, model outputs.

Comments on SDG&E's First Quarter Report

Guidance 1 – Lack of risk spend efficiency information – SDG&E provided a table on “Direct Wildfire Risk Mitigation” (SDGE 2020 First Quarter Report, Table 3, p. 13) in partial response to deficiency Guidance 1. This table is generally lacking in its reporting of “Calculated reduction in wildfire consequence risk for each initiative in its 2020 WMP,” especially for SDG&E’s fuel management and slash reduction initiative (ID E.5, SDGE Q1 Report, p. 16). Fuel management and slash reduction is correlated with ignition and wildfire consequence. SDG&E should explain why it does not include a calculated reduction in wildfire consequence for E.5. Similarly, SDG&E should provide an assessment of wildfire risk reduction for vegetation management activities and any other activities that affect wildfire consequence.

Guidance-2 Lack of alternative analysis for chosen initiatives – The tables SDG&E provides in response to Guidance-2 are generally vague with many initiatives “risk reduction quantification methods” described as “Subject matter expertise backed by some historical data analysis” and reason for selection frequently stating “more optimal solution...” GPI poses that the Guidance 2 deficiency regarding a lack of alternative analysis for chosen initiatives still stands for SDG&E. We do note the frequent reference in Guidance 2 tables that they are “currently working on new model.” This response

indicates an ongoing shortcoming in terms of SDG&E's ability to quantitatively weigh alternatives and analyze, select, prioritize and ultimately optimize wildfire mitigation activities.

Guidance-7 Lack of Detail on effectiveness of “enhanced” inspection programs –

SGD&E claims that: “...the effectiveness of inspections cannot be directly measured through a reactive lens because inspections are proactive programs. Inspections identify issues that could lead to failures and repair them before the failures occur. Thus, the avoided failures cannot be identified.”

GPI disagrees. Most wildfire initiatives are “proactive” and are intended to prevent ignitions from occurring in the first place (e.g. vegetation management, hazard tree removal, equipment replacements, grid hardening). The efficacy and risk mitigation impact of these initiatives are based on existing ignition drivers and their likelihood and rate of ignition, as well as ignition consequence. Inspections are no different and can be evaluated based on the number of vegetation or equipment findings that are known to cause ignitions and the number of ignitions the resulting corrections would have prevented. For example, if an enhanced hazard tree inspection identified and led to the timely removal of 1000 hazard/strike trees, and there is a rate of 2 ignitions per 1000 tree strike incidences, then the impact of that inspection program could be assumed to reduce ignitions by 2 events. IOUs should take care to not double-count the ignition reduction impact of inspections and the actions those inspections result in (e.g. strike tree removal). Estimating and comparing the ignition risk reduction impacts of routine versus enhanced inspection methods is a valuable metric that can inform whether alternative solutions are needed and ultimately contribute to optimizing cost-effective wildfire mitigation approaches. SDG&E and the other IOUs should develop a quantitative assessment for evaluating the effectiveness of inspection programs.

SDGE-1 Balloon contacts – SDG&E shows that they incur a lower number of balloon contact ignitions in HFTD Tier 2 and Tier 3 relative to non-HFTDs (SDG&E 2020 First Quarter Report, p. 97). While this does not necessarily negate their relatively high percent of total ignitions caused by balloons, it does suggest that breaking down ignition drivers

by HFRA and HFTD tiers, including normalizing those data to HFRA/HFTDs, may provide additional guidance for wildfire mitigation initiative prioritization and optimization in areas most susceptible to wildfires and high wildfire consequence.

SDGE-2 Vehicle contact ignitions – Similar to our comments regarding SDGE-1, an assessment of ignition drivers and occurrences in HFTDs, or even more granular assessments, may help prioritize wildfire mitigation plans. However, we do not suggest that the findings negate the need to address vehicle or balloon contact ignition drivers in SDG&E’s territory or HFTDs. It may be prudent for SDGE to map the locations of vehicle contact events and ignitions, beyond the specified high-risk locations (e.g. high speed corners), to better inform and perhaps prioritize vehicle contact mitigation at the regional or circuit level granularity based on geographic patterns.

SDGE-8 Consideration of environmental impacts, local community input – The response to SDGE-8 is vague and does not address how SDG&E *incorporates* local community input (see. SDGE-8, *ii*), only that it engages with the community. SDG&E also states that: “Utility line clearance operations are a unique niche within the green industry and, therefore, its scope needs to be addressed and incorporated within easement language, city tree ordinances, permits, local codes, etc. (SDG&E 2020 First Quarter Report, p. 120).” They should clarify what is meant by this statement.

SDGE- 9 SDG&E Does Not Explain How Investments in Undergrounding Reduce Planned Vegetation Management Spending – SDG&E should provide quantitative metrics to substantiate and quantify Condition SDGE-9 regarding cost savings from VM activities associated with conductor undergrounding.

Updated on SDG&E-13 Lack of Risk Reduction or Other Supporting Data for Increased Time-or-Trim Clearances – SDG&E must provide a statistical analysis of the tree trim data provided in order to establish statistical significance between the different tree trimming clearances based on the data provided. This statistical analysis must account for differences in sample sizes and variance, address both one and two tailed distributions,

include confidence intervals or standard deviation and provide p values substantiating any statistical differences between trim distances.

PGE First Quarter Report

Guidance-1 Lack of risk spend efficiency information – PG&E does not provide an RSE value for fuel management and reduction of slash. PG&E’s Guidance attachment 1 for this initiative states: “No RSE Calculated. See Response in Guidance-1.” However, there is no reference to slash or fuel management in Guidance 1. PG&E should remedy this deficiency by providing an RSE for fuel and slash management and a description of how this value was determined.

Guidance-2 Lack of alternatives analysis for chosen initiatives – PG&E suggests that VM initiative 5.3.5.2 “detailed inspection of vegetation around distribution electric lines and equipment” has “Except for continuous improvements, limited alternatives considered as part of the 2020 WMP.” PG&E should explain why initiative 5.3.5.7 “Light Detection and Ranging (LiDAR) inspections of vegetation around distribution electric lines and equipment,” initiative 5.3.5.9 “Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations” and initiative 5.3.5.11 “Patrol inspections of vegetation around distribution electric lines and equipment” are not considered alternatives to each other (i.e. all VM inspection approaches) in general, as well as in specific targeted regions or geographies. PG&E states that alternatives to Initiative 5.3.5.5 “Fuel management and reduction of ‘slash’ from VM activities” are

...evaluated by SMEs during the development of the EVM Program of the last few years include: performing fuel reduction work at the same time and locations as EVM work, increased or decreased annual volume of work, different scope of fuel management including creating fuel breaks vs. directly under powerlines, etc. Assessment of alternatives has largely been driven by feasibility of implementation (PG&E 2020 First Quarter Report, p. 19).

GPI is concerned that the fuel and slash management are not informed by RSE values (see Guidance-1 response above), and are driven by undefined “feasibility” constraints. PG&E should determine an RSE for fuel and slash management and include it in their initiative

implementation decision as well as explain who is providing SME input and what are the “feasibility” constraints to implementing this initiative.

PG&E’s Remote Grid concept, which “focuses on decentralizing energy resources to permanently supply energy to certain remote customers instead of maintaining traditional utility infrastructure (PG&E 2020 First Quarter Report, p 21)” is laudable. GPI looks forward to advancements in animating this concept and notes that this proposal aligns with the Distribution Resource Plan proceeding. For this reason, the WMP should endeavor to ensure coordination with the Microgrid and DRP proceedings.

PGE-6 Discrepancy between ignition reduction projections – PG&E states:

PG&E’s fundamental forecast of an overall 10 percent reduction for vegetation-, equipment failure-, and animal-caused ignitions in HFTDs, and subsequently 8 percent reduction in HFTD area overall ignitions, was based on the qualitative judgment of PG&E SMEs using the results of 2019 ignitions (PG&E 2020 First Quarter Report, p. 115).

Basing plan-wide ignition reduction estimates on the “qualitative judgement” of SMEs is unacceptable. PG&E should remedy this with quantitative, data-based estimates in order to evaluate each of its initiatives and plan as a whole.

PGE-18 – Deficiency PGE-18 states that PG&E does not provide detail on “specific species that pose a high risk...” PG&E’s response does not provide information regarding specific species that they deem high risk. In PG&E-19 they state that the “...EVM scope published in March of 2019 identified the top 10 species that should be removed if they qualify as strike trees (PGE 2020 First Quarter Report, p. 165).” PG&E should provide their top 10 EVM species and, if different, their species list for standard VM activities.

PGE-21 PG&E fails to describe why additional programs for clearances are necessary

– PG&E’s response to PGE-21 is insufficient and essentially states that the planned activities will reduce the risk of ignition without providing any quantitative, data-driven assessment justifying additional transmission clearance activities. While the planned activities may reduce ignition risk, we suspect the amount of risk reduction will be small given the 5-year annual average transmission related vegetation contact near miss incidences of 61 compared to 5,600 on the distribution system, and similar “percent of

HFTD assets with additional risk reduction exceeding routine vegetation maintenance in 2020” corresponding to 4.7 and 7 percent respectively (PG&E 2020 First Quarter Report, p. 172). From a rudimentary assessment assuming that all additional VM programs would eliminate vegetation contact near misses along the treated line, the current plan would prevent nearly 3 near misses on the transmission line and 392 near misses on the distribution line, totaling 395 near miss events.

If all additional VM activities were instead performed on distribution lines (2,062 miles) this would prevent 451 vegetation contact near misses. PG&E’s RSE values for transmission vegetation management activities are missing for VM related transmission activities (See. Guidance-1 Atch01, Initiative activity 10, 17.2, 18.2, and 20) and the only RSE that is available is lower (0.23- 0.34) compared to its distribution counterpart (1.43 – 2.46). PG&E should provide quantitative justification for additional transmission VM programs (e.g. RSE, resultant customer reliability, anticipated near misses and ignitions, wildfire consequence) and provide specifics regarding qualitative justifications leading to their decision (e.g. wildfire consequence).

PGE-23 Vegetation waste and fuel management process unclear – GPI is concerned that PG&E’s waste and fuel management plan includes a Transmission Utility Defensible Space (UDS) pilot but neglects to consider a Distribution UDS program. It is well known that most near misses and ignitions occur on the distribution system. We also suspect that clearing defensible space along distribution lines and assets presents different challenges compared to the transmission system. Exploring ways in which to increase UDS along distribution lines is likely an important endeavor for mitigating ignitions as well as wildfire consequence and may exceed transmission line UDS RSE and consequence impacts.

PG&E states that VM debris less than 4” in diameter is removed only if it is 100’ from the chipper. Otherwise, slash is left in place less than 18” deep and in contact with the ground. GPI is concerned that this practice results in significant woody biomass left to dry and supply fuel in HFTDs, and which is contrary to the dire need for fuel management in California and HFTDs. All IOUs should reevaluate this practice and its potential to

contribute to ignition and wildfire consequence. They should also propose “enhanced” fuel and slash management initiatives with accompanying RSE values, parallel to and called for due to “enhanced” VM practices.

SCE First Quarter Report

Guidance-1 – We provide the following recommendations In SCE’s response to Guidance 1: (i) Table 1 lists PSPS as only having a consequence versus ignition risk reduction type. SCE should clarify this determination. To our understanding, PSPSs also prevent ignitions. SCE should also justify why each wildfire mitigation initiative is only afforded either ignition or consequence risk reduction types. GPI recommends all IOUs evaluate initiative risk reduction potential for both ignition and consequence as applicable. (ii) SCEs initiatives listed in Table 1 do not include fuel and slash management. All IOUs should have fuel and slash management initiatives. (iii) SCE, and all IOUs should include the assumed useful life of each mitigation initiative. (iv) The lack of RSE values for initiatives in Tables A7-A11 is concerning. SCE should explore ways to develop data-driven RSE values for pre-existing as well as novel initiatives.

Guidance-2 Lack of alternative analysis for chosen initiatives – We assume that activity SH-7, “PSPS-Driven Grid Hardening Work,” includes a decision-making process to determine specific grid hardening approaches such as covered conductor installation, wood pole replacements, undergrounding, temporary or permanent microgrid interconnection equipment/reconfigurations. However, SCE lists no considered alternatives. SCE should clarify what all optional grid hardening approaches are included within PSPS-driven grid hardening work and how it assessed the optimal combination of those approaches over other alternative approaches.

Guidance-7 Lack of detail on effectiveness of “enhanced” inspection programs – SCE found that combining ground-based compliance and risk-informed inspection programs improved cost effectiveness. All Utilities filing WMPs should explore and integrate this approach into their ground-based inspection programs.

SCE- 19 Covered conductor program resource allocation – The estimated costs of covered conductor installation for the 2020 WMP (e.g. \$ 775 M/ 1,600 miles covered

conductor in 2022 = \$ 484 k per mile) are below that of what was spent per mile in 2019 (\$270 M/ 277 miles of covered conductor = \$866 k per mile). SCE should explain why the average per mile covered conductor installation costs in the 2020 WMP are lower than per-mile average costs in 2019.

SCE-22 Fuel management – SCE describes their fuel management programs but they do not include a fuel and slash management or RSEs in their initiative tables, with the justification, “Because ‘slash’ from vegetation management activities are disposed or recycled by trimming/removal contractors (SCE 2020 First Quarter Report, p. A-4).” SCE needs to consider fuel and slash management as part of the wildfire mitigation toolbox that reduces ignition and wildfire consequence and include it as a regular program that is optimized alongside other initiatives and informed by an RSE.

SCE’s Drought Resistance Initiative (DRI) is a tree removal program. SCE should clarify how this program is different from “Hazard tree removals” and other tree-removal programs it conducts and whether these multiple tree removal programs can be combined into one program to reduce costs.

SCE describes their Integrated Vegetation Management pilot. GPI looks forward to the results of this work and its potential to guide wildfire mitigation efforts and VM. While valuable it is only one aspect of fuel management in that it does not remove the existing buildup of fuels or remove fuels introduced from VM activities. Other activities discussed, such as tree removal programs, while perhaps linked to fuels management, also fall short of directly addressing fuels management. This is particularly true if the standard approach involves only clearing slash that is within 100’ of the chipper, similar to PG&E, and much of the slash is left in place, or if the approach includes no QA/QC since it is performed by contractors (SCE 2020 First Quarter Report, p. A-4). The “Fuel management program” is the only program squarely addressing fuels management. However, it is discussed in vague language:

Fuel Management Programs: SCE is working collaboratively with Region 5 of the USFS and each individual forest on preparing a fuel management program on how to dispose of fuel (i.e., left over plant matter) after routine vegetation management activities. SCE reduces

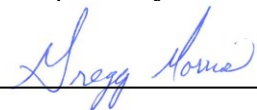
slash (e.g., cut limbs and other woody debris) from vegetation management activities by chipping and then hauling the material away to be disposed or recycled by pruning/removal contractors. Some of SCE's vegetation programs, such as DRI, send its debris to a biomass plant. SCE would prefer to manage green waste through biomass recycling projects. SCE is currently performing a study to determine the best use of fuel reduction and anticipates completing this study by year-end 2020. (SCE 2020 First Quarter Report, p. 284)

SCE should provide additional detail regarding their fuels and slash management program, including a description of the developing fuel management program with the USFS, its protocol from VM slash removal, the percent of total debris sent to biomass plant facilities, the status and parameters of its fuel reduction study.

SCE also references the use of RSE to determine whether fuels management work outside the ROW is feasible. The general consensus is that RSE is not the only metric that should be used to determine the value and need for a given mitigation activity. Furthermore, SCE has not yet provided an RSE for VM related fuels or slash management (p. A-4, VM and Inspection Initiative ID 5), let alone for work beyond their ROW. SCE should provide percent consequence risk reduction and RSE values for all existing and planned fuels and slash management initiatives that include the benefits of use pathways (e.g. biomass generation, manufacturing end-uses), and how it will regularly include and optimize fuel and slash management initiatives in conjunction with other initiatives. As previously stated, the IOUs should explore the need for enhanced fuel and slash management initiatives alongside other enhanced VM initiatives.

Dated September 30, 2020

Respectfully Submitted,



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