BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to Senate Bill 901 (2018).	Rulemaking 18-10-007 (filed October 25, 2018)

LIBERTY UTILITIES (CALPECO ELECTRIC) LLC'S (U 933-E) QUARTERLY REPORT ON 2020 WILDFIRE MITIGATION PLAN

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Pursuant to the Wildfire Safety Division (WSD) Resolutions WSD-002 and WSD-007 ratified on June 11, 2020, associated with Rulemaking ("R.") 18-10-007, Liberty Utilities (CalPeco Electric) LLC ("Liberty CalPeco") hereby provides a Quarterly Report on the Liberty CalPeco 2020 Wildfire Mitigation Plan (2020 WMP). The Quarterly Report addresses all required Liberty CalPeco-specific deficiencies identified in WSD-007 and all required IOU guidance identified in WSD-002. Additionally, the Quarterly Report includes the completed WSD Status Report data template, updated GIS data submissions, and updated data through July 2020 on performance and outcome metrics related to Liberty CalPeco's WMP.

I. LIBERTY CALPECO SPECIFIC DEFICIENCIES IDENTIFIED IN WSD-007

A. Deficiency (LIB-1, Class B): *Liberty did not describe methods for tracking effectiveness of its covered conductor initiative*.

Although Liberty asserts intention to extensively deploy covered conductor throughout its entire service territory, Liberty has not developed a method for tracking the effectiveness of its planned covered conductor installations or studied the structural impacts that such a broad deployment would create on the existing overhead infrastructure across its service territory.

i. Liberty CalPeco Response to LIB-1 Condition:

In its first quarterly report, Liberty shall:

1) Describe a methodology for tracking and measuring the effectiveness of its covered conductor installations at reducing the frequency and probability of:

(1) Outages for top 10 outage causes based on best available historical data; and

(2) Ignitions for all CPUC reportable ignitions

Step #1 - Identifying at-risk wildfire areas

Liberty CalPeco has retained the services of Reax Engineering to help identify at-risk wildfire areas in its service territory to help prioritize and plan for future covered conductor. Reax has developed a wildfire propagation model for areas surrounding Liberty CalPeco's overhead assets using historic weather data and fuel sources to predict the consequences and potential fire spread of random fire ignitions along its lines. Reax has analyzed and summarized the results by sectionalizing Liberty CalPeco's service territory into "polygons" denoting various wildfire risk profiles that range from low wildfire ("WF") risk to very high WF risk areas. This resulted in 49 polygons that Liberty CalPeco will use as the basis for its WF risk analysis. Each WF risk polygon translates to one to two circuits and can be analyzed and tracked for measuring performance at the circuit level.

Step #2 – Gather and organize risk-related data by circuit and analyze data

Liberty CalPeco has compiled and organized historic outage information from 2015-2020 (First Quarter) that is summarized by circuit and major cause to develop an average annual frequency for each circuit and driver. This data, along with detailed asset data, such as number of poles, overhead and underground circuit miles, and transformers by circuit, as well as vegetation-related risk data, was compiled and is in the review-and-analysis process by operations and engineering.

Step #3 - Develop a plan for each circuit

Completing the individual circuit assessments will permit the company to develop a plan going forward for the covered conductor mitigation. Liberty CalPeco will use the compiled risk data by circuit to plan for targeted covered conductor in areas with high wildfire risk, high probability asset failure, high outage frequency, and high vegetation-related risk segments first. Liberty CalPeco will identify the remaining areas for future covered conductor planning purposes for each circuit based on historic outages, asset performance, and planned vegetation work. Liberty CalPeco will consider and analyze other alternatives for each region. The next step is to set a timeline for installing covered conductor for each line segment over the next one, five, and 10 years. This is a more targeted approach using the Reax wildfire risk polygons and associated risk data points as the basis for prioritizing and planning future covered conductor in lieu of mass covered conductor on all tier 2 and 3 overhead lines. In addition, Liberty CalPeco plans to reassess current planned projects for re-prioritizing to the greatest extent possible based on both its risk models' output and its wildfire risk maps.

Step #4 - Track performance of covered conductor program by circuit or segment using Smart M.Apps application

Liberty CalPeco uses the Smart M.Apps application, which is an interactive visualization tool that houses detailed historic outage information from 2015-2020 (First Quarter) that can be displayed at the macro system level, as well as by circuit and/or major driver level. Liberty CalPeco plans to layer forced outage data on top of all of the completed and planned covered conductor segments over the next few years. This allows Liberty CalPeco to track performance of covered conductor at the individual line segment level in relation to past outages on the same line segment to best track the effectiveness of reducing the forced outages. After the installation of covered conductor, Liberty CalPeco can measure individual circuit performance by outage frequency and type and will analyze and assess for planned mitigations.

2) Describe the magnitude and scope of the structural impacts of broad covered conductor deployment across its existing overhead facilities, the associated asset replacement consequences by asset type, and the estimated cost of those associated replacements.

As described in the previous section, Liberty CalPeco plans to target covered conductor installations across its service territory using wildfire risk areas as the basis for identifying and prioritizing future projects. Liberty CalPeco identified in the 2020 WMP specific covered conductor projects that averaged approximately $930,000 per mile. The average project cost estimate was $614,000 per mile of covered conductor and $316,000 per mile for the estimated number of pole replacements for each project. Given there are approximately 1,500 overhead circuit miles in Liberty CalPeco's service territory in the Tier 2 HFTD, it is impractical and uneconomic to consider replacing all conductor lines with covered conductor. Liberty CalPeco will also use this targeted approach for managing vegetation-related risk and asset risk in its service territory. One benefit afforded by this approach is optimizing resources and spending on mitigations that are most efficient and effective based on its risk data analysis.

B. Deficiency (LIB-2, Class B): *Liberty reports inspection frequencies that raise concerns about effectiveness*.

Liberty is only planning for annual inspections in Tier 3, and a three-year cycle for other areas. This has proven to be inadequate to address grow-ins and fall-ins and has led to numerous instances of Public Resources Code (PRC) violations being identified. Similarly, Liberty's third-party contractor reviews the inspection process every three years. This appears to be too long of a delay to identify deficiencies in the program which may impact ignition potential.

i. Liberty CalPeco Response to LIB-2 Condition:

In its first quarterly report, Liberty shall:

1) Justify its three-year cycle;

In 2018, Liberty CalPeco employed a comprehensive third-party assessment of its vegetation management program, identifying an optimum, routine vegetation maintenance cycle. The study

concluded that Liberty CalPeco had previously been completing work at a rate that would equate to a 7.3-year maintenance cycle, and a three-year cycle would be optimal for routine vegetation management activities. In addition to its routine vegetation management program, Liberty CalPeco conducts supplemental, accelerated inspections of its system, tracked in its Catastrophic Event Memorandum Account (CEMA). These inspections primarily focus on mitigating hazards posed by dead and dying trees; additionally, Liberty CalPeco inspects trees to uphold line clearance requirements throughout the routine maintenance cycle. Liberty CalPeco's operations department conducts inspections of its system in accordance with General Order 165 and reports to the vegetation management department any vegetation conditions that may need mitigation prior to the next routine cycle to help maintain PRC clearance requirements as well. Liberty CalPeco will be conducting another third-party assessment of its vegetation management program in fall 2020 to re-evaluate the current inspection cycle and to determine if its vegetation management strategy is sufficient to maintain compliance with clearance requirements. Liberty CalPeco is already taking steps to enhance its vegetation inspections through the use of LiDAR technology. In fall of 2020, Liberty CalPeco will conduct a LiDAR based inspection of half of its service territory, and will include vegetation analytics in this survey to determine vegetation-to-conductor clearances and to identify any vegetation conditions that may need to be addressed. Liberty CalPeco plans to complete a LiDAR survey of the remaining half of the system in 2021. If this approach proves successful, Liberty CalPeco intends to conduct regular LiDAR inspections to augment its vegetation management program and maintain adequate vegetation clearance distances.

2) Report how it is meeting its PRC clearance requirements; and

See response to Section B.i.1) above.

3) If its current inspection cycle is insufficient to avoid violations of clearance requirements, explain how they will resolve those deficiencies,

including potential increases in frequency of inspections, reviews and audits.

See response to Section B.i.1) above.

C. Deficiency (LIB-4, Class B): *Liberty notes the challenge of attracting and retaining employees in the high-cost Lake Tahoe community*.

Liberty identifies the high cost of living in its service territory as a potential labor challenge for WMP implementation but provides no discussion regarding its plans or strategy for labor recruitment.

i. Liberty CalPeco Response to LIB-4 Condition:

In its first quarterly report, Liberty shall detail:

1) Its recruitment and retention strategy for labor, considering the high cost of living in its service territory, and

Liberty CalPeco hired a Manager of Talent Acquisition in January 2020, who focuses on securing personnel with appropriate skills, experience, education, and competencies. Liberty CalPeco has expanded its Talent Acquisition Team to meet staffing demands. The Manager of Talent Acquisition is a qualified recruiter, who develops a recruitment strategy for each open position. This includes cold sourcing candidates through professional sourcing outlets as LinkedIn and Indeed.com. Liberty CalPeco's applicant tracking system is another recruiting tool utilized to source candidates who applied for positions to determine if their skill sets fit other open positions for which they did not apply. Liberty CalPeco has been able to recruit for open positions in an efficient manner. All of the urgent WMP positions are now filled. Liberty CalPeco's retention strategy includes focusing on employee engagement. Liberty CalPeco has put in place an employee engagement team to improve employee engagement and employee morale. In addition, Liberty CalPeco's retention strategy includes providing its line operations team with a retention bonus. Liberty CalPeco has had no significant issues with compensation and filling most open positions during this current workforce environment.

2) How it plans to deal with this constraining factor in scaling its WMP programs and initiatives.

Liberty CalPeco planned to deal with the constraining factor in scaling its WMP programs and initiatives by developing a staffing plan, which has since been successful in achieving a full staff.

D. Deficiency (LIB-5, Class B): *Data Governance.*

Liberty's data governance program including its GIS data and asset inventory requires improvement before the 2021 WMP filing.

i. Liberty CalPeco Response to LIB-5 Condition:

Liberty should confer with CAL FIRE and the WSD to fill in gaps in its GIS data in preparation for its 2021 WMP update. Liberty is also directed to:

1) Include in quarterly reports to the WSD updates on the progress of its data governance upgrades, until Liberty's system-wide survey, asset inventory database, and upgrades to its GIS system have modernized or Liberty is otherwise directed.

Liberty CalPeco has worked and will continue to work closely with representatives from CAL FIRE and the WSD as this process evolves to improve GIS data for information required in future reports and WMP filings. Liberty CalPeco has actively participated in the WSD workshops and is working to incorporate its newly released GIS schema requirements into the existing GIS database. Liberty CalPeco met with WSD on September 1, 2020 to discuss the WSD data submittal guidance and processes and Liberty CalPeco's ongoing efforts to meet the data requirements of the WSD.

A new enterprise GIS system upgrade that will enhance Liberty CalPeco's ability to collect, store, and report crucial WMP data is scheduled to go live in June 2021. In the interim, Liberty CalPeco has purchased and configured a mobile application to collect asset inspection and system hardening data. Liberty CalPeco will export these records from this mobile application into the new GIS system once that system is active.

Also, in April 2020, Liberty CalPeco began a system wide-asset survey of all overhead facilities. The primary goal of the system survey is to identify all exempt or non-exempt hardware (according to the CAL FIRE guidelines) that are attached to overhead facilities and store that data in the GIS according to structure. In addition, the project will locate and address potential safety and fire hazards, as well as improve the accuracy of existing GIS data by updating facility locations, incorrect facility identification, missing structures, etc. The system survey is 75% complete as of September 4, 2020 and is estimated to finish by October 1, 2020.

II. IOU GUIDANCE IDENTIFIED IN WSD-002

A. Deficiency (Guidance-1, Class B): *Lack of RSE information.*

2020 WMP submissions WMP submissions contain sparse and sporadic detail regarding the RSE of WMP initiatives. RSE calculations are critical for determining whether utilities are effectively allocating resources to initiatives that provide the greatest risk reduction benefits per dollar spent, thus ensuring responsible use of ratepayer funds. Although RSE concepts have been considered for several years through Commission GRCs, utilities still display unrefined and limited abilities to produce such information. Considering that utilities propose to spend billions of dollars on WMP initiatives, not having quantifiable information on how those initiatives reduce utility ignition risk relative to their cost severely limits the WSD's ability to evaluate the efficacy of such initiatives and each utility's portfolio of initiatives, as outlined in 2020 WMPs.

Further, RSE is not an appropriate tool for justifying the use of PSPS. When calculating RSE for PSPS, electrical corporations generally assume 100 percent wildfire risk mitigation and very low implementation costs because societal costs and impact are not included. When calculated this way, PSPS will always rise to the top as a wildfire mitigation tool, but it will always fail to account for its true costs to customers. Therefore, electrical corporations shall not rely on RSE calculations as a tool to justify the use of PSPS.

i. Liberty CalPeco Response to Guidance-1 Condition:

In its first quarterly report, each electrical corporation shall provide the following:

1) Its calculated reduction in ignition risk for each initiative in its 2020 WMP;

Liberty CalPeco is still building its wildfire risk model with the support of its wildfire engineering consultant. Since the completion of the 2020 WMP, Liberty CalPeco estimates that its model is about 75% complete. The wildfire risk model will resemble those of the larger IOUs, utilizing methods such as MARS/MAVF and RSE. Risk reduction is a feature that is contained in the methods mentioned above, as a measure of effectiveness based on the level of reduction.

2) Its calculated reduction in wildfire consequence risk for each initiative in its 2020 WMP; and

Please see response in Section II.A.i.1) above.

3) The risk models used to calculate (i) and (ii) above.

Please see response in Section II.A.i.1) above. Additionally, the company will provide the models upon completion.

B. Deficiency (Guidance-2, Class B): *Lack of alternatives analysis for chosen initiatives.*

2020 WMP submissions contain little to no detail regarding utilities' process for comparing potential WMP initiatives. While most WMP initiatives are generally assumed to reduce utility wildfire risk, there are typically several alternatives that can address specific drivers of utility ignitions and near misses. However, 2020 WMPs generally do not include any discussion of which alternatives were considered, how the utility evaluated the efficacy of each alternative, and how the utility ultimately decided upon the suite of initiatives presented in its 2020 WMP.

i. Liberty CalPeco Response to Guidance-2 Condition:

In its first quarterly report, each electrical corporation shall provide the following:

1) All alternatives considered for each grid hardening or vegetation management initiative in its 2020 WMP;

Please see Table 1: Liberty CalPeco Response to Guidance-2.

2) All tools, models, and other resources used to compare alternative initiatives;

Please see Table 1: Liberty CalPeco Response to Guidance-2.

3) How it quantified and determined the risk reduction benefits of each initiative; and

Please see Table 1: Liberty CalPeco Response to Guidance-2.

4) Why it chose to implement each initiative over alternative options.

Please see Table 1: Liberty CalPeco Response to Guidance-2.

Table 1: Liberty CalPeco Response to Guidance-2

WMP Initiative	(1) All alternatives considered for each grid hardening or vegetation management initiative in 2020 WMP	(2) All tools, models, and other resources used to compare alternative initiatives	(3) How Liberty CalPeco quantified and determined the risk reduction benefits of each initiative	(4) Why Liberty CalPeco chose to implement each initiative over alternative options
Covered Conductor Installation	1) Expand covered conductor on all Tier 3 circuits/segments 2) Undergrounding 3) Continue to use bare conductor	The targeted areas identified for covered conductor in the 2020 WMP were based on subject matter expert's knowledge of the system and condition of assets in those remote areas. In addition, the isolated locations were ideal candidates for covered conductor because, in the event of a wildfire, the likelihood of a fire escaping initial containment is extremely high. The roll-out of the covered conductor program was a conservative approach and not based on risk-based decision-making or other analytical tools	Overhead-to-underground conversions are extremely costly, by customer requests pursuant Rule 20A, and rarely initiated by Liberty CalPeco. Continued use of bare conductor does not mitigate wildfire risk long-term. No risk reduction analysis was performed to weigh the alternatives.	Covered conductor was determined to be the most effective mitigation option as it is less expensive to implement and easier to permit than undergrounding. Continued use of bare conductor does not mitigate wildfire risk long-term.

WMP Initiative	(1) All alternatives considered for each grid hardening or vegetation management initiative in 2020 WMP	(2) All tools, models, and other resources used to compare alternative initiatives	(3) How Liberty CalPeco quantified and determined the risk reduction benefits of each initiative	(4) Why Liberty CalPeco chose to implement each initiative over alternative options
Distribution Pole Replacement	1) Proactive Pole Replacements based on age of asset	None	Distribution pole replacement is a result of Liberty CalPeco's GO 165 intrusive pole inspection program. Poles that do not pass the intrusive pole inspection are replaced under this initiative. Poles with compromised structural integrity present a potentially significant fire risk. By replacing these poles, Liberty CalPeco reduces its risk of fire.	Liberty CalPeco determined that the current pole replacement program is a more cost-effective approach.
Expulsion Fuse Replacement	1) Expanded clearances at base of poles (pole grubbing) 2) Continue to use conventional expulsion fuses	Budgetary estimates, risk modeling of existing overhead facilities.	Non-expulsion fuses are known to be the only alternative that truly mitigates wildfire risk long-term. Pole grubbing is temporary, and continuing to use expulsion fuses is not prudent for wildfire mitigation	Expanded PRC 4292 clearances do not guarantee there will not be an ignition. Stopping the spark at its source is the most effective form of mitigation. Continued use of conventional fuses creates increased ignition risk.

WMP Initiative	(1) All alternatives considered for each grid hardening or vegetation management initiative in 2020 WMP	(2) All tools, models, and other resources used to compare alternative initiatives	(3) How Liberty CalPeco quantified and determined the risk reduction benefits of each initiative	(4) Why Liberty CalPeco chose to implement each initiative over alternative options
Grid Topology Improvements	1) Undergrounding 2) Covered Conductor	None	Budgetary estimates of hardening a distribution line by installing covered wire or undergrounding were higher than estimates to implement a microgrid at the Sagehen location. The microgrid project allows for nearly four miles of overhead power line to be de-energized during fire season, which eliminates fire risk along that section of line.	Budgetary estimates for Sagehen microgrid determined that the installation of a microgrid in a remote location was more cost-efficient compared to re-building, undergrounding, or hardening the distribution line serving the sole customer.
Install System Automation Equipment	1) Continue system operation without additional system automation equipment	None	Reliability metrics show that SAIDI / SAIFI could be improved during wildfire season with system automation. Non-reclosing settings have negatively impacted SAIDI / SAIFI during wildfire season, sacrificing reliability for safety. System automation also allows for better sectionalizing during PSPS events	Installation of system automation equipment allows the same level of safety that non-reclosing settings have offered and improves reliability to customers and minimizes the scale and length of PSPS outages.
Pole Loading Infrastructure Hardening	None	None	Liberty CalPeco is required to meet safety factor requirements in accordance with GO 95. Pole loading for new projects and system hardening efforts must be done.	When a new pole is set, pole loading calculations must be performed. There is no alternative.

WMP Initiative	(1) All alternatives considered for each grid hardening or vegetation management initiative in 2020 WMP	(2) All tools, models, and other resources used to compare alternative initiatives	(3) How Liberty CalPeco quantified and determined the risk reduction benefits of each initiative	(4) Why Liberty CalPeco chose to implement each initiative over alternative options
Undergrounding Overhead Lines (Rule 20A)	None	None	N/A	Rule 20 undergrounding projects do have wildfire mitigation benefits and are chosen by local governments to be in the general interest of the public. Typically, Rule 20 projects eliminate an unusually heavy concentration of overhead lines in scenic areas in Liberty CalPeco's service territory.
Tree Attachment Removal	1) Leave services attached to trees	None	Liberty CalPeco is still working to quantify the risk reduction benefits of this initiative against the costs. The number of tree attachments targeted annually remains at 60 until Liberty CalPeco determines how many tree attachments exist and determines whether risk spend efficiency justifies the costs of placing all of those services on newly installed poles.	In benchmarking with other utilities, Liberty CalPeco observed that other utilities have been making efforts to remove their services from trees as a way to mitigate fire risk. Liberty CalPeco has decided to begin this process at a moderate pace until more data can be used to analyze the risk reduction benefits against the cost of replacing each service.
Wire Upgrade Program	1) Do not replace aging copper conductor, gray secondary and service wire, and open wire secondary.	No comparative analysis made.	N/A	These conductor types are known ignition sources.

WMP Initiative	(1) All alternatives considered for each grid hardening or vegetation management initiative in 2020 WMP	(2) All tools, models, and other resources used to compare alternative initiatives	(3) How Liberty CalPeco quantified and determined the risk reduction benefits of each initiative	(4) Why Liberty CalPeco chose to implement each initiative over alternative options
Repairs and G.O. 165 Outcome from System Survey	1) Maintain five-year detailed visual inspection cycle	None	Detailed visual GO 165 inspections are required every five years. By performing these inspections of the entire system in one year, Liberty CalPeco is committed to making repairs in a much shorter timeframe, which reduces fire risk.	Liberty CalPeco has embarked on a system-wide survey to inventory equipment on every pole in 2020 to assess the condition of assets. In order to perform this inventory, an inspector must visually inspect each pole. In an effort to manage efficiency and also to accelerate detailed visual inspections, inspectors will perform detailed visual GO 165 inspections in addition to the inventory.
Additional Efforts to Manage Community and Environmental Impacts	No alternatives considered	None	Liberty CalPeco has worked with agencies and land managers to implement forest resilience corridors. This forest management concept leverages fuel reduction work that surrounds powerline corridors and ties them into fuel reduction work carried out by Liberty CalPeco. Healthy forests and reduced fuel load reduces fire risk, benefitting the community and environment.	This initiative was selected because of the support from land managing partners and forest health benefits that help the community by reducing fire risk and maintaining healthy forests.

WMP Initiative	(1) All alternatives considered for each grid hardening or vegetation management initiative in 2020 WMP	(2) All tools, models, and other resources used to compare alternative initiatives	(3) How Liberty CalPeco quantified and determined the risk reduction benefits of each initiative	(4) Why Liberty CalPeco chose to implement each initiative over alternative options
Detailed Inspections of Vegetation around Lines and Equipment	No alternatives considered	None	Liberty CalPeco's detailed inspections comply with vegetation regulations, including GO 95 Rule 35, PRC 4292, and PRC 4293. Inspecting each tree to check for compliance with those regulations at the time of inspection, and for the future, results in what is considered detailed inspections, which provides a reduction of wildfire risk.	Liberty CalPeco's routine vegetation management inspections are detailed visual inspections of individual trees in the right-of-way and outside of the right-of-way. Each tree that has potential to impact Liberty CalPeco's facilities is examined. If there is a condition that requires remediation, the condition is documented, so that it can be remediated. This practice existed prior to the WMP filing, and alternatives were not considered.
Fuel Management and Reduction of "Slash"	1) Continue previous practice of leaving large woody debris on the forest floor	None	Landowners are required to maintain defensible space by managing vegetation and fuel load on their properties. When utility tree removal is performed on these parcels, there is potential for defensible space requirements to be broken. By removing slash and managing fuel that results from Liberty CalPeco's actions, Liberty CalPeco is helping customers maintain defensible space, reduce fuel load, and ultimately reduce fire risk.	Liberty CalPeco historically has only removed slash and debris <4" in diameter. By choosing this initiative, Liberty CalPeco will reduce fuel load and fire risk that result from vegetation management activities.

WMP Initiative	(1) All alternatives considered for each grid hardening or vegetation management initiative in 2020 WMP	(2) All tools, models, and other resources used to compare alternative initiatives	(3) How Liberty CalPeco quantified and determined the risk reduction benefits of each initiative	(4) Why Liberty CalPeco chose to implement each initiative over alternative options
Other Vegetation Management	1) No additional vegetation management 2) Change routine inspection frequency across entire territory	None	This initiative is taking place in Tier 3 of the High Fire Threat District. When evaluating where to start with more frequent patrols, Liberty CalPeco determined it would be best to begin in the area of the service territory considered to have the highest fire risk.	More frequent inspections are beneficial to an extent. Inspecting frequently enough to identify potential problems before they become an issue is the key, while inspecting too frequently will not be an effective use of resources. Liberty CalPeco's routine vegetation management program is based on a three-year trim cycle. This initiative has been selected to explore the feasibility of an annual clearance based inspection that would supplement the routine vegetation management program. Liberty CalPeco chose to begin with these annual inspections in Tier 3 of the High Fire Threat District and will evaluate these inspections to determine the feasibility of expanding to Tier 2, which is nearly the remainder of Liberty CalPeco's service territory.

WMP Initiative	(1) All alternatives considered for each grid hardening or vegetation management initiative in 2020 WMP	(2) All tools, models, and other resources used to compare alternative initiatives	(3) How Liberty CalPeco quantified and determined the risk reduction benefits of each initiative	(4) Why Liberty CalPeco chose to implement each initiative over alternative options
Patrol Inspection of Vegetation around Lines and Equipment	No alternatives considered	None	This initiative describes Liberty CalPeco's inspection program to identify dead and dying trees tracked in a Catastrophic Event Memorandum Account (CEMA). The increase in tree mortality in Liberty CalPeco's service territory has led to a higher-than-average volume of dead trees threatening the power lines. The California Governor's State of Emergency Proclamation for tree mortality expresses the need to address dead and dying trees.	Liberty CalPeco does not see an alternative option for this program.
Quality Assurance/Quality Control of Inspections	No alternatives considered	None	A Quality Assurance/Quality Control program monitors execution and planning of initiatives are being executed as planned and keeps contractors accountable.	Liberty CalPeco does not see an alternative option for this program.

WMP Initiative	(1) All alternatives considered for each grid hardening or vegetation management initiative in 2020 WMP	(2) All tools, models, and other resources used to compare alternative initiatives	(3) How Liberty CalPeco quantified and determined the risk reduction benefits of each initiative	(4) Why Liberty CalPeco chose to implement each initiative over alternative options
Remediation of at-risk species	No alternatives considered	None	This initiative includes three items: 1) All tree work completed based on routine vegetation management inspections. 2) All tree work completed based on CEMA inspections. 3) The commitment to develop a tree failure database to further analyze tree failure characteristics for Liberty CalPeco's service territory. All three of these items will reduce risk by targeting vegetation that will impact electrical facilities.	The tree work programs existed prior to the WMP filing and fit in this category. The tree failure database is new and will be used to improve hazard identification in different species in the service territory.

C. Deficiency (Guidance-4, Class B): *Lack of discussion on PSPS impacts.*

Across 2020 WMP submissions, utilities indicate goals of reducing the scope, frequency and duration of PSPS events but also indicate intentions of continuing to implement PSPS as a wildfire mitigation measure in the immediate future. Considering the rapid expansion of PSPS use as a wildfire mitigation measure, and the numerous hardships, inconveniences and hazards created by its vast implementation, it is concerning that 2020 WMPs provide no discussion of how the chosen portfolio of initiatives will allow the utility to achieve its goals for reducing PSPS impacts. Specifically, no 2020 WMPs discuss the relationship between various grid hardening, vegetation management, and asset management initiatives and the corresponding impacts on thresholds for initiating PSPS events.

i. Liberty CalPeco Response to Guidance-4 Condition:

In its first quarterly report, each electrical corporation shall detail whether and how each initiative in its WMP:

1) Affects its threshold values for initiating PSPS events;

Liberty CalPeco's developed its current thresholds for proactive de-energization by utilizing Public Safety Power Shutoff (PSPS) zones that were established in Tier 2 and Tier 3 areas of the HFTD and can be separately isolated or de-energized. The work that went into determining de-energization thresholds was based primarily on fire weather considerations in PSPS zones. This inherently assumes that each PSPS zone presents equal risk from utility-associated fires to structures, people, and improved property. Liberty CalPeco did not consider factors such as Firewise practices (defensible space, construction techniques, etc.), ingress/egress, first responder response time and capabilities, and wind direction relative to assets at risk, etc. when establishing these de-energization thresholds. Liberty CalPeco's PSPS thresholds are currently fixed and do not change based on initiative progress. As these initiatives progress and more data is available to evaluate their wildfire risk reduction impacts, Liberty CalPeco may find a better way to combine existing fire weather based threshold methodology with

initiative risk reduction. Please see Is expected **to reduce the frequency (i.e. number of events) of PSPS events;**

Liberty CalPeco has very limited experience with PSPS events. There has only been one, very minimal PSPS event in 2018, which pre-dated to the establishment of PSPS thresholds. The 2018 weather event would not have met Liberty CalPeco's existing PSPS thresholds. Since establishing its de-energization thresholds, Liberty Calpeco has not had a PSPS event, which makes it difficult to quantify the expected reduction of PSPS events. Please see **Error! Not a valid bookmark self-reference.**: Liberty CalPeco Response to Guidance-4 for additional information.

2) Is expected to reduce the scope (i.e. number of customers impacted) of PSPS events;

Please see Table 2: Liberty CalPeco Response to Guidance-4

3) Is expected to reduce the duration of PSPS events; and

Please see Table 2: Liberty CalPeco Response to Guidance-4

4) Supports its directional vision for necessity of PSPS, as outlined in Section 4.4 of its WMP.

Each WMP initiative generally supports Liberty CalPeco's directional vision for necessity of mitigating PSPS events and customer impacts resulting from PSPS events. No additional impact analysis has been performed at the initiative level due to limited experience with PSPS events. The protocols and thresholds used to determine if power will be shutoff are detailed in Liberty CalPeco's Fire Prevention Plan and submitted in annual G.O. 166 compliance reports. Liberty CalPeco continues to assess possible differences in approaches to the PSPS protocols across customer classes in the WUI designation.

Table 2: Liberty CalPeco Response to Guidance-4 for additional information.

5) Is expected to reduce the frequency (i.e. number of events) of PSPS events;

Liberty CalPeco has very limited experience with PSPS events. There has only been one, very minimal PSPS event in 2018, which pre-dated to the establishment of PSPS thresholds. The 2018 weather event would not have met Liberty CalPeco's existing PSPS thresholds. Since establishing its de-energization thresholds, Liberty Calpeco has not had a PSPS event, which makes it difficult to quantify the expected reduction of PSPS events. Please see **Error! Not a valid bookmark self-reference.**: Liberty CalPeco Response to Guidance-4 for additional information.

6) Is expected to reduce the scope (i.e. number of customers impacted) of PSPS events;

Please see Table 2: Liberty CalPeco Response to Guidance-4

7) Is expected to reduce the duration of PSPS events; and

Please see Table 2: Liberty CalPeco Response to Guidance-4

8) Supports its directional vision for necessity of PSPS, as outlined in Section 4.4 of its WMP.

Each WMP initiative generally supports Liberty CalPeco's directional vision for necessity of mitigating PSPS events and customer impacts resulting from PSPS events. No additional impact analysis has been performed at the initiative level due to limited experience with PSPS events. The protocols and thresholds used to determine if power will be shutoff are detailed in Liberty CalPeco's Fire Prevention Plan and submitted in annual G.O. 166 compliance reports. Liberty CalPeco continues to assess possible differences in approaches to the PSPS protocols across customer classes in the WUI designation.

Table 2: Liberty CalPeco Response to Guidance-4

WMP Initiative	**(1) affects its threshold values for initiating PSPS events**	**(2) is expected to reduce the frequency (*i.e.*, number of events) of PSPS events**	**(3) is expected to reduce the scope (*i.e.*, number of customers impacted) of PSPS events**	**(4) expected to reduce the duration of PSPS events**
Advanced Weather Monitoring and Weather Stations	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Weather stations may reduce scope due to more granular forecasting ability	If scope is reduced, it would take less time to restore customers - shorter duration
Continuous Monitoring Sensors	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
Fire Potential Index	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
ALERT Tahoe	Does not affect threshold values for initiating PSPS events	Does not reduce frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events

WMP Initiative	**(1) affects its threshold values for initiating PSPS events**	**(2) is expected to reduce the frequency (*i.e.*, number of events) of PSPS events**	**(3) is expected to reduce the scope (*i.e.*, number of customers impacted) of PSPS events**	**(4) expected to reduce the duration of PSPS events**
Covered Conductor Installation	Does not affect threshold values for initiating PSPS events. However, PSPS events may not be considered in the future for areas where a significant amount of covered conductor has been installed.	Could reduce frequency	Covered conductor is expected to reduce the scope of PSPS events in the future. As more covered conductor is installed, more areas will potentially be removed from PSPS consideration. Additionally, resiliency corridors projects that connect overhead covered wire installation to underground areas will keep more customers energized. If mainline is covered, Liberty CalPeco may only need to de-energize laterals in PSPS zone.	If scope is reduced, it would take less time to restore customers - shorter duration
Distribution Pole Replacement	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
Expulsion Fuse Replacement	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events

WMP Initiative	**(1) affects its threshold values for initiating PSPS events**	**(2) is expected to reduce the frequency (*i.e.*, number of events) of PSPS events**	**(3) is expected to reduce the scope (*i.e.*, number of customers impacted) of PSPS events**	**(4) expected to reduce the duration of PSPS events**
Grid Topology Improvements	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Grid topology improvements, such as microgrids and undergrounding projects, are expected to reduce the scope of PSPS events as more grid topology installation takes place. For example, microgrids would allow power lines to be energized while customers remain in power.	If scope is reduced, it would take less time to restore customers - shorter duration
Install System Automation Equipment	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	System automation equipment is expected to reduce the scope of PSPS events by increasing ability to sectionalize line and reduce number of impacted customers	If scope is reduced, it would take less time to restore customers - shorter duration
Pole Loading Infrastructure Hardening	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events

WMP Initiative	(1) affects its threshold values for initiating PSPS events	(2) is expected to reduce the frequency (*i.e.*, number of events) of PSPS events	(3) is expected to reduce the scope (*i.e.*, number of customers impacted) of PSPS events	(4) expected to reduce the duration of PSPS events
Undergrounding Overhead Lines (Rule 20A)	Does not affect threshold values for initiating PSPS events. However, PSPS events may not be considered in the future for areas where a significant amount of underground infrastructure exists.	Underground projects are not taking place at a pace and scale that would significantly impact frequency.	Liberty CalPeco does not have plans to underground power lines at a pace and scale that would reduce the scope of PSPS events.	Liberty CalPeco does not have plans to underground power lines at a pace and scale that would reduce the duration of PSPS events.
Tree Attachment Removal	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
Wire Upgrade Program	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
Repairs and G.O. 165 Outcome from System Survey	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
Detailed Inspections - Asset Survey and GIS Update	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
Improvements of Inspections	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events

WMP Initiative	**(1) affects its threshold values for initiating PSPS events**	**(2) is expected to reduce the frequency (*i.e.*, number of events) of PSPS events**	**(3) is expected to reduce the scope (*i.e.*, number of customers impacted) of PSPS events**	**(4) expected to reduce the duration of PSPS events**
Intrusive Pole Inspections	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
LiDAR Inspections of Electric Lines and Equipment	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
Additional Efforts to Manage Community and Environmental Impacts	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events
Detailed Inspections of Vegetation around Lines and Equipment	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events
Fuel Management and Reduction of "Slash"	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events
Other Discretionary Inspection of Vegetation around Lines and Equipment	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events
Other Vegetation Management	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events

WMP Initiative	**(1) affects its threshold values for initiating PSPS events**	**(2) is expected to reduce the frequency (*i.e.*, number of events) of PSPS events**	**(3) is expected to reduce the scope (*i.e.*, number of customers impacted) of PSPS events**	**(4) expected to reduce the duration of PSPS events**
Patrol Inspection of Vegetation around Lines and Equipment	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events
QA/QC of Inspections	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events
Remediation of at-risk-species	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events
Centralized Repository for Data	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events
Collaborative Research on Utility Ignition/Wildfire	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the scope of PSPS events	Does not reduce the duration of PSPS events
Adequate and Trained Workforce	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Liberty CalPeco has added staff to support PSPS training and preparedness. By continuing to prepare and train on re-energization protocols, the duration of PSPS events is expected to reduce.

WMP Initiative	**(1) affects its threshold values for initiating PSPS events**	**(2) is expected to reduce the frequency (*i.e.*, number of events) of PSPS events**	**(3) is expected to reduce the scope (*i.e.*, number of customers impacted) of PSPS events**	**(4) expected to reduce the duration of PSPS events**
Community Engagement	Does not affect threshold values for initiating PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the frequency of PSPS events	Does not reduce the duration of PSPS events

D. Deficiency (Guidance-5, Class B): *Aggregation of initiatives into programs.*

In their 2020 WMP submissions, electrical corporations often combine various initiatives into broader programs and report cost, risk and other related data at the program level. This aggregation of initiatives and bundled reporting creates several issues. First, because cost data is typically reported across programs and not individual initiatives, it is not possible for the WSD to evaluate the efficacy of each initiative. Second, when initiatives are bundled and reported together as programs, it prevents the WSD from being able to assess which initiatives are effectively reducing utility wildfire risk. Consequently, this creates the challenge that ineffective elements of broad programs cannot be determined and future considerations of initiatives within programs can only be done collectively.

i. Liberty CalPeco Response to Guidance-5 Condition:

In its first quarterly report, each electrical corporation shall:

1) Break out its programs outlined in section 5.3 into individual initiatives;

In its 2020 WMP submission, Liberty CalPeco separately identified its existing WMP programs, using the guidelines outlined in section 5.3 to describe and report on the individual initiatives to the extent applicable.

2) Report its spend on each individual initiative;

Liberty CalPeco used the guidelines in section 5.3 to report individual initiative costs. There were some initiatives that, based on their description, were redundant in scope and, in these instances, the initiative spend only appeared in one section in 5.3 to avoid duplicating costs.

3) Describe the effectiveness of each initiative at reducing ignition probability or wildfire consequence;

Liberty CalPeco is in the process of developing its RBDM model that, once implemented later this year, will measure the effectiveness of each initiative.

4) List all data and metrics used to evaluate effectiveness described in (iii), including the threshold values used to differentiate between effective and ineffective initiatives; and

Although still in the development stage, Liberty CalPeco plans to utilize data and metrics at the circuit level to measure the effectiveness of each WMP initiative that includes monitoring improvements in the number of forced outages tracked and categorized by wildfire driver, monitoring asset repairs and replacements to track the probability of asset failures, and use of vegetation management metrics to track tree work performed on high risk trees for each circuit.

5) Provide the information required for each initiative in section 5.3 of the Guidelines. If an electrical corporation does not have the relevant data for each initiative, it shall: i) explain the difference between what it reports and what the WMP Guidelines require, ii) explain why it cannot meet the WMP Guidelines, and iii) develop a plan to obtain and share the relevant initiative information at the initiative level rather than the program level, including a timeline of when such information will be provided.

Liberty CalPeco does not have updates to section 5.3 and has provided all available information regarding each WMP initiative in its 2020 WMP update report.

E. Deficiency (Guidance-6, Class B): *Failure to disaggregate WMP initiatives from standard operations.*

While WMPs are designed to outline and detail filer's plans and initiatives for mitigating wildfire risk, many existing programs also provide wildfire risk reduction benefits. For example, General Order (GO) 165 requires annual patrol inspections and detailed inspections every five years for electrical infrastructure. These programs and initiatives are often referenced in 2020 WMPs as "supporting," "routine," "enabling," "standard," or "foundational" work. For these types of programs, in most cases, electrical corporations do not report cost or risk reduction data, as the work is considered part of their electric operations and it is indicated that this information is not tracked independently.

Several electrical corporations state that their programs for inspecting and maintaining crossarms, poles, transformers, transmission towers and similar infrastructure, which also reduce wildfire risk, are

embedded within standard maintenance programs litigated in GRCs. Consequently, it is difficult to determine whether and how these programs incrementally impact wildfire risk reduction or if related WMP initiatives are redundant and unnecessary. While utilities may not have historically considered the costs and effectiveness of such programs and initiatives, given that numerous WMP initiatives have apparent overlap or potential redundancy, it is imperative that utilities provide such data to validate the need for and effectiveness of additional programs.

It is not clear how electrical corporations are tracking their WMP activities in memorandum accounts if they do not budget for them by type of initiative. The Commission will scrutinize electrical corporations' memorandum accounts for WMP carefully, and if all costs are simply lumped together or included in general operations and maintenance accounts, electrical corporations risk failing to provide entitlement to cost recovery.

i. Liberty CalPeco Response to Guidance-6 Condition:

In its first quarterly report, each electrical corporation shall:

1) Clearly identify each initiative in Section 5.3 of its WMP as "Standard Operations" or "Augmented Wildfire Operations;"

Please see Table 3: Liberty CalPeco Response to Guidance-6.

2) Report WMP required data for all Standard Operations and Augmented Wildfire Operations;

Please refer to Section 2 of Liberty CalPeco's 2020 WMP.

3) Confirm that it is budgeting and accounting for WMP activity of each initiative; and

Please see Table 3: Liberty CalPeco Response to Guidance-6.

4) Include a "ledger" of all subaccounts that show a breakdown by initiative.

Please see Table 3: Liberty CalPeco Response to Guidance-6.

Table 3: Liberty CalPeco Response to Guidance-6

WMP Initiative	Standard Operations or Augmented Wildfire Operations	Account Tracking Number
Advanced Weather Monitoring and Weather Stations	Augmented Wildfire Operations	88R-WMP-WSTATIONS
Continuous Monitoring Sensors	Augmented Wildfire Operations	Number not yet created
Fire Potential Index	Augmented Wildfire Operations	8800-WFMP-EXPENSE
ALERT Tahoe	Augmented Wildfire Operations	8800-WFMP-EXPENSE
Covered Conductor Installation	Augmented Wildfire Operations	88R-WMP-COVERCOND
Distribution Pole Replacement	Standard Operations	88D-PR-PER TEST
Expulsion Fuse Replacement	Augmented Wildfire Operations	88R-WMP-FUSEREPL
Grid Topology Improvements	Augmented Wildfire Operations	88R-WMP-MICROGRID
Install System Automation Equipment	Augmented Wildfire Operations	88R-WMP-RECLOSER
Pole Loading Infrastructure Hardening	Augmented Wildfire Operations	Number not yet created
Undergrounding Overhead Lines (Rule 20A)	Standard Operations	Number not yet created
Tree Attachment Removal	Augmented Wildfire Operations	88R-WMP-TREEATTCH
Wire Upgrade Program	Augmented Wildfire Operations	88R-WMP-WIREUPGRD
Repairs and G.O. 165 Outcome from System Survey	Augmented Wildfire Operations	8800-NLT-OM165 ; 8800-SLT-OM165
Detailed Inspections - Asset Survey and GIS Update	Augmented Wildfire Operations	88R-WMP-SYSSURVEY
Improvements of Inspections	Augmented Wildfire Operations	8800-WFMP-EXPENSE
Intrusive Pole Inspections	Standard Operations	8800-GO165TREE
LiDAR Inspections of Electric Lines and Equipment	Augmented Wildfire Operations	8800-0020-LIDAR
Additional Efforts to Manage Community and Environmental Impacts	Augmented Wildfire Operations	8800-WFMP-FRC
Detailed Inspections of Vegetation around Lines and Equipment	Standard Operations	8800-19/21-OMVG
Fuel Management and Reduction of "Slash"	Augmented Wildfire Operations	8800-WFMP-FUELMGT

WMP Initiative	Standard Operations or Augmented Wildfire Operations	Account Tracking Number
Other Vegetation Management	Augmented Wildfire Operations	8800-WMP-TIER3
Patrol Inspection of Vegetation around Lines and Equipment	Standard Operations	8800-CEMATREES
QA/QC of Inspections	Augmented Wildfire Operations	Number not yet created
Remediation of at-risk-species	Standard Operations	8800-19/21-OMVG; 8800-CEMATREES
Centralized Repository for Data	Augmented Wildfire Operations	Number not yet created
Collaborative Research on Utility Ignition/Wildfire	Augmented Wildfire Operations	88R-WMP-HIFSTUDY
Adequate and Trained Workforce	Augmented Wildfire Operations	8800-WFMP-EXPENSE
Community Engagement	Augmented Wildfire Operations	8800-WFMP

F. Deficiency (Guidance-7, Class B): *Lack of detail on effectiveness of "enhanced" inspection programs.*

Utilities engage in numerous 'enhanced' inspection programs, but it is unclear if such 'enhanced' programs are incrementally effective over routine patrol and detailed inspections, particularly if patrol and detail inspections are scheduled based on risk rather than GO 95 minimums.

i. Liberty CalPeco Response to Guidance-7 Condition:

In its first quarterly report, each electrical corporation shall detail:

1) The incremental quantifiable risk identified by such 'enhanced' inspection programs;

Liberty CalPeco's current detailed inspections for vegetation management are scheduled each year to comply with the requirements set forth in GO 95 Rule 35, PRC 4292, and PRC 4293. Liberty CalPeco inventories and tracks all trees by tree type, unique tree ID, location, work required, tree risk attribute, and work priority based on strike potential and compliance with regulatory standards. The only enhancement to the minimum inspection requirements are related to trees located in the Tier 3 HFTD. In this initiative,

compliance inspections take place on an annual basis instead of the previous three-year basis. The "enhancement" is a shorter inspection cycle in Liberty CalPeco's highest fire threat area to inspect and verify that proper clearances are maintained. By year end, Liberty CalPeco plans to utilize results from its RBDM to re-evaluate the need to increase vegetation-related inspections for high-risk areas identified in the Reax fire propagation model.

2) Whether it addresses the findings uncovered by 'enhanced' programs differently than findings discovered through existing inspections; and

All vegetation-related work identified from inspections, whether enhanced or not, will go through the same inventory and tree risk evaluation process, and work will be issued to tree crews for completion of identified work.

3) A detailed cost-benefit analysis of combining elements of such 'enhanced' inspections into existing inspection programs.

Liberty CalPeco did not conduct any specific cost-benefit analysis for enhanced vegetation inspections in Tier 3 areas and made its decision based on expert judgement from operations and wildfire management. Liberty CalPeco selected this initiative based on conversations with CAL FIRE representatives who suggested moving to an annual inspection. Furthermore, in Liberty-02 deficiency, WSD states that "Liberty is only planning for annual inspections in Tier 3, and a three-year cycle for other areas. This has proven to be inadequate to address grow-ins and fall-ins and has led to numerous instances of PRC violations being identified." This WSD statement verifies the need for annual inspections in Tier 3 and the possible expansion of annual inspections for more of Liberty CalPeco's service territory.

G. Deficiency (Guidance-9, Class B): *Insufficient discussion of pilot programs.*

Electrical corporations do not describe how they will evaluate and expand the use of successfully piloted technology or which piloted technology has proven ineffective. To ensure pilots that are successful result in expansion, if warranted and justified with quantitative data, electrical corporations must evaluate each pilot or demonstration and describe how it will expand use of successful pilots.

i. Liberty CalPeco Response to Guidance-9 Condition:

In its first quarterly report, each electrical corporation shall detail:

1) All pilot programs or demonstrations identified in its WMP;

Liberty CalPeco defined the following programs in its WMP as pilot programs:

a) Distribution Fault Anticipation (DFA)
b) High Impedance Fault Detection (HIFD)
c) Rapid Earth Fault Current Limiter (REFCL)
d) Light Detection and Ranging (LiDAR)
e) Sagehen Microgrid
f) Electronic Dropout Reclosers (Tripsavers)
g) Covered Wire

2) Status of the pilot, including where pilots have been initiated and whether the pilot is progressing toward broader adoption;

The status of each pilot program is as follows:

a) DFA – As of August 31, 2020, the proposal from Texas A&M is received and negotiations of the contract completed. A business case is currently awaiting senior management approval. Material for a 10 feeder pilot is to be purchased in 2020 with implementation of the pilot program in 2021.
b) HIFD – As of the August 31, 2020, the HIFD research pilot with the University of Nevada, Reno (UNR) is underway. An accurate model of the pilot feeder is being developed. Once completed, research will continue using HIFD on the pilot circuit. Recommendations will be made for relay settings in order to implement the HIFD on the test feeder. The study work is planned to be completed by end of 2020, with implementation by mid-2021.
c) REFCL – Liberty CalPeco is in the beginning stage of researching this technology. Liberty CalPeco had an informational meeting with Swedish Neutral AB on August 27, 2020 to learn more about the technology. Liberty CalPeco's will learn about the technology, with a target to implement at a pilot substation in its Tier 3 area by end of 2021.
d) Light Detection and Ranging (LiDAR) – Liberty CalPeco's LiDAR pilot project is planned in 2020 in its South Lake Tahoe region. It will cover all distribution and transmission circuits in that region. Liberty CalPeco will extend to its North Lake Tahoe region in 2021, covering all circuits there. In addition to being able to use LiDAR survey to update GIS data, Liberty CalPeco will use LiDAR to prioritize planned vegetation maintenance activities, as well as mitigate any locations that are determined to be an ignition risk based on CPUC General Order 95 Rule 35 and CAL FIRE Public Resource Code 4293.
e) Sagehen Microgrid – The Sagehen Microgrid is currently in construction with a target in service of October 2020. Liberty CalPeco intends to study the project for effectiveness of taking a small customer completely off the grid. This would enable Liberty CalPeco to de-energize a roughly four-mile section of line through heavily forested areas during fire season.

f) Tripsavers – Liberty CalPeco has purchased 30 units and has begun deployment for its 2020-2021 pilot of the devices. For 2020, Liberty CalPeco has identified four locations. Liberty CalPeco will install additional locations in 2021 in Liberty CalPeco's Tier 3 fire threat district.
g) Covered Wire – Liberty CalPeco has completed the first phase of the Hendrix ACS pilot, installing roughly 0.75 miles in the Tahoe basin. Liberty CalPeco has begun a broader adoption plan in 2020, installing an additional three phases of ACS bundled conductor. Liberty CalPeco plans to utilize the ACS technology for an additional four projects in 2021.

3) Results of the pilot, including quantitative performance metrics and quantitative risk reduction benefits;

While none of the pilot programs are mature enough to have performance metrics, Liberty CalPeco will use a similar method in tracking as proposed for covered conductor (see response to Liberty-01 Deficiency). Liberty CalPeco uses the Smart M.Apps application, which is an interactive visualization tool that houses detailed historic outage information from 2015-2020 (First Quarter) that can be displayed at the macro system level, as well as by circuit and/or major driver level. Liberty CalPeco plans to layer on the base forced outage data on top of all of the completed and planned pilot program locations over the next few years. This allows the company to track performance of the pilot programs at the individual line segment level in relation to past outages on the same line segment to best track the effectiveness of reducing the forced outages. After the installation of pilot programs, individual circuit performance can be measured by outage frequency and type, and will be analyzed and assessed for planned mitigations going forward.

4) How the electrical corporation remedies ignitions or faults revealed during the pilot on a schedule that promptly mitigates the risk of such ignition or fault, and incorporates such mitigation into its operational practices; and

Please see Liberty CalPeco's response in Section I.A.i.

5) A proposal for how to expand use of the technology if it reduces ignition risk materially.

Liberty CalPeco plans to evaluate each pilot program over the next several years. Once the pilot program period is up, and evaluation of the effectiveness of the program will be conducted using the steps

above, and expand the program into normal operations. The plan to integrate each program follows:

h) DFA – Liberty CalPeco is planning a pilot including 10 feeders for installation and evaluation in 2021. If the program is evaluated and shown to be effective in reducing ignition risk materially, Liberty CalPeco plans to expand the program to all of its 42 distribution feeders, integrated over a 5 year period from 2022-2027.
i) HIFD – The University of Nevada, Reno is scheduled to have the HIFD study completed for one Liberty CalPeco feeder by December 31, 2021. . If the program is evaluated and shown to be effective in reducing ignition risk materially, Liberty CalPeco will expand this technology over a 10 year period to all of its high risk feeders as determined by our Risk-Spend Efficiency (RSE) evaluation.
j) REFCL – Liberty CalPeco is in the beginning stage of researching this technology. Liberty CalPeco had an informational meeting with Swedish Neutral AB on August 27, 2020 to learn more about the technology. Liberty CalPeco's will learn about the technology, with a target to implement at a pilot substation in its Tier 3 area by end of 2021. In 2022 the technology will be evaluated. If the program is evaluated and shown to be effective in reducing ignition risk materially, Liberty CalPeco will expand this technology depending on its RSE evaluation of the program. Cost to pilot this program is currently unknown as we are awaiting a proposal from Swedish Neutral.
k) Light Detection and Ranging (LiDAR) – Liberty CalPeco's LiDAR pilot project is planned in 2020 and 2021and will cover its entire service territory over these two years. If the program is evaluated and shown to be effective in reducing ignition risk materially, Liberty CalPeco will schedule LiDAR evaluations periodically, depending on its RSE evaluation.
l) Sagehen Microgrid – The Sagehen Microgrid is currently in construction with a target in service of October 2020. Liberty CalPeco intends to study the project for effectiveness of taking a small customer completely off the grid. If the program is evaluated and shown to be effective in reducing ignition risk materially, other microgrids will be considered depending on RSE evaluations.
m) Tripsavers – Liberty CalPeco has purchased 30 units and has begun deployment for its 2020-2021 pilot of the devices. If the program is evaluated and shown to be effective in reducing ignition risk materially, Liberty CalPeco will deploy Tripsavers across its territory, starting with its highest risk feeders and depending on its RSE evaluation.
n) Covered Wire – Liberty CalPeco plans to continue installation of covered wire in high fire threat areas. Also, covered wire is intended to be used to create some resiliency corridors. If the program is evaluated and shown to be effective in reducing ignition risk materially, Liberty CalPeco will continue its covered conductor program as determined by its RSE evaluations.

H. Deficiency (Guidance-10, Class B): *Data issues – general.*

Although the availability of data, including GIS data, provides unprecedented insight into utility infrastructure and operations, inconsistencies and gaps in the data present a number of challenges and

hurdles. As it relates to GIS data, electrical corporation submissions often had inconsistent file formats and naming conventions, contained little to no metadata, were incomplete or missing many data attributes and utilized varying schema. These deficiencies rendered cross-utility comparisons impossible without substantive, resource- and time-consuming manipulation of the data. Additional data challenges included varying interpretations of WMP Guideline data requirements, leading to inconsistency of data submitted.

i. Liberty CalPeco Response to Guidance-10 Condition:

Electrical corporations shall ensure that all future data submissions to the WSD adhere to the forthcoming data taxonomy and schema currently being developed by the WSD. Additionally, each electrical corporation shall file a quarterly report detailing:

1) Locations where grid hardening, vegetation management, and asset inspections were completed over the prior reporting period, clearly identifying each initiative and supported with GIS data;

The WSD data schema was released too close to the initial reporting period. Consequently, Liberty CalPeco is unable to adhere to all of the data standards outlined in that document for this quarterly report for most feature classes.

Asset Inspections:

Shapefiles that show asset inspection work completed to date are included in the provided data folder: "WMP_QtrlyFiling_SurveyShpFiles".

Vegetation Management:

Shapefiles that show vegetation management work completed to date, by initiative, are included in the provided data folders: "2020_Vegetation_Inspections"; "2020_Vegetaton_Tree_Work".

Grid Hardening:

Data for all activities is in the provided geodatabase (GDB) that show locations of grid hardening work completed to date: WSD_GdbTemplate_2020_Liberty. In addition, Liberty CalPeco has provided a

separate shapefile showing locations of fuse replacements that did not make it into the GDB: "Grid_Hardening_Fuse_Replacements_Sep_2020.shp".

2) The type of hardening, vegetation management and asset inspection work done, and the number of circuit miles covered, supported with GIS data;

Asset Inspections:

All asset inspection data provided in this response comes from the system survey asset inspection project in which detailed visual inspections took place at each structure along with an inventory of attached equipment. Results from the inspections are as follows:

- 14,410 structures inspected to date
- 1,193 circuit miles inspected to date

Vegetation Management:

The type of vegetation management work that has been done to date includes:

- Detailed inspections of vegetation around lines and equipment;
- Fuel management and reduction of "slash";
- Patrol inspection of vegetation around lines and equipment;
- Remediation of at-risk species; and
- Other Vegetation Management

Grid Hardening:

The types of hardening that have been done to date are as follows:

- Covered Conductor, approximately 2.75 miles.
- Removal of tree attachments by installing 35' poles and rerouting service lines, approximately 44.
- Distribution pole replacements per GO165 pole testing, approx. 42 poles in permitting.
- Replacement of old "grey" wire secondary and service conductors, approx. 15,570'.
- Replacement of "Open Wire" secondary, approx. 661'.
- Undergrounding of overhead lines, per Rule 20, in construction.
- Fuse replacements, the attached "Grid Hardening_Fuse Replacements_Sep_2020" file refers to the fuse replacement grid hardening initiative. Fuse locations covering approximately 110 circuit miles have been replaced with non-expulsion alternatives.

3) The analysis that led it to target that specific area and hardening, vegetation management or asset inspection initiative; and

Asset Inspections:

Liberty CalPeco did not have an inventory of exempt/non-exempt hardware that are attached to its overhead distribution and transmission facilities. Therefore, the system survey project was initiated to visit each structure to gather this information and incorporate the data into the GIS. Additional benefits of the project are that the overall accuracy of the GIS will improve with inspection of each structure as well as the finding and addressing of potential fire hazards during the inspection process.

Vegetation Management:

Specific areas targeted for vegetation management initiatives are selected through analysis of various sources of information, including vegetation maintenance history, environmental conditions, feedback from the operations department, customer requests, and collaboration with local land managers and resource protection agencies.

Grid Hardening:

The following steps are included in the analysis of the specific area of hardening:

- For covered conductor, Liberty CalPeco determined that, to reduce overhead line contact with vegetation, Liberty CalPeco needed to install covered conductor on its overhead primary facilities to reduce the chances of starting a wildfire.
- For the removal of tree attachments, a program was already in place. At the customer's request, Liberty CalPeco removes existing overhead service tree attachments and installs 35' poles. The large number of dead or dying trees that need to be removed by the land owner in the Tahoe basin drives this program.
- Distribution pole replacements have been an ongoing GO 165 program to test and treat approximately 10% of Liberty CalPeco's distribution poles per year.
- Removal of "grey" insulated services was an existing program resulting from several instances in which conductor insulation of existing overhead service wires was cracking and falling off and creating shorts in the wire that caused customer service outages and damage to customer facilities.
- Removal of open wire was an ongoing program to remove bare secondary conductor on cross arms with a triplexed, covered 600V insulated conductor to reduce the chances of vegetation contact.

- The undergrounding of overhead lines is governed by the Rule 20 tariff.
- For fuse replacements, the analysis to target the specific area for hardening includes prioritization of Tier 3 HFTD, as well as preliminary results from a third-party study on Liberty CalPeco's wildfire risk areas.

4) Hardening, vegetation management, and asset inspection work scheduled for the following reporting period, with the detail in (i) – (iii).

Asset Inspections:

Liberty CalPeco estimates that there are 6,772 structures remaining, and the system survey will be completed by October 1, 2020. Shapefiles that the remaining structures scheduled for inspection over the next reporting period are included in the data folder: "WMP_QtrlyFiling_SurveyShpFiles".

Vegetation Management:

Work scheduled for the next reporting period includes:

- Additional efforts to manage community and environmental impacts (FRC 625 line);
- QA/QC inspections;
- Detailed inspections of vegetation around lines and equipment;
- Fuel management and reduction of "slash";
- Patrol inspection of vegetation around lines and equipment;
- Remediation of at-risk species; and
- Other vegetation management.

Shapefiles that show vegetation management work planned by initiative over the next reporting period are included in the data folder: "Q4_Planned_Vegetation_Inspections".

Grid Hardening:

For future hardening Liberty CalPeco is considering the following:

- For covered conductor, Liberty CalPeco porposes approximately 3.86 miles to be installed in the next reporting period.
- 23 tree attachments are scheduled to be removed.
- For distribution pole replacements, three poles are scheduled to be replaced in October, as the rest of the project is delayed by environmental permitting.
- Liberty CalPeco will replace approximately 6,000 feet of additional "grey" wire secondary and service.
- Liberty CalPeco will replace approximately 600 feet of "open wire" secondary.

- Liberty CalPeco anticipates the completion of 3,000 feet of overhead-to-underground Rule 20 conversion on the Apache Ave.
- For fuse replacements and polygon data of areas that are scheduled to have fuse replacements completed by the following reporting period, Liberty has provided the data folder: "Grid_Hardening_Fuse_Replacements_next_quarter_targets".

I. Deficiency (Guidance-11, Class B): *Lack of detail on plans to address personnel shortages***.**

Electrical corporations do not explain in detail the range of activities that they are undertaking to recruit and train personnel to grow the overall pool of talent in areas of personnel shortage.

i. Liberty CalPeco Response to Guidance-11 Condition:

In its first quarterly report, each electrical corporation shall detail:

1) A listing and description of its programs for recruitment and training of personnel, including for vegetation management;

Liberty CalPeco's direct recruiting program consists of working in its current applicant tracking system and sourcing applicants who applied for other jobs to match skill sets of other open positions. The Manager of Talent Management has engaged candidates by cold sourcing through professional sourcing outlets like LinkedIn and Indeed. In addition, Liberty CalPeco has an employee referral program that has helped source candidates locally. Indirect hiring is strategically done through using local staffing agencies and contractors and sub-contractors who are experts in the electric utility industry. This recruitment strategy applies to all departments of the organization, including vegetation management. The metrics used to track the effectiveness of recruitment programs includes data pulled from the applicant tracking system, such as the time to fill open positions and candidate source information. Because of the COVID-19 pandemic, Liberty CalPeco has created an effective plan to train newly hired employees both remotely and on-site. This is done through virtual meetings and field training with appropriate social distancing and masks.

2) A description of its strategy for direct recruiting and indirect recruiting via contractors and subcontractors; and

Please see response in Section I.i.1)

3) Its metrics to track the effectiveness of its recruiting programs, including metrics to track the percentage of recruits that are newly trained, percentage from out of state, and the percentage that were working for another California utility immediately prior to being hired.

Please see response in Section I.i.1)

J. Deficiency (Guidance-12, Class B): *Lack of detail on long-term planning***.**

Electrical corporations do not provide sufficient detail regarding long-term wildfire mitigation plans and how the initiatives in their WMPs align with and support those long-term plans.

i. Liberty CalPeco Response to Guidance-12 Condition:

In their first quarterly report, each electrical corporations shall detail:

1) Its expected state of wildfire mitigation in 10 years, including 1) a description of wildfire mitigation capabilities in 10 years, 2) a description of its grid architecture, lines, and equipment;

By 2030, Liberty CalPeco will have made significant strides in reducing the potential for wildfire.

Wildfire mitigation capabilities in 2030: With a hardened system, greater understanding of fire progression modeling, and use of risk-based capital planning, the need for PSPS events will be significantly reduced. In the rare event of a PSPS, resiliency corridors will be established that will minimize disruption to customers by enabling many grocery stores, gas stations, charging stations, and restaurants to remain open during PSPS. Covered conductor will protect high risk areas during volatile weather events and will help extend resiliency corridors to more customers. DFA technology will trip circuits before large amounts of energy are released, dramatically reducing ignition potential. LiDAR technologies will help keep all circuits clear from surrounding vegetation. Micro-grids will further enable resiliency corridors in areas far removed from traditional energy sources.

Grid architecture, lines, and equipment improvements: Significantly more of Liberty CalPeco's distribution system will be either underground (via Rule 20) or converted to covered conductor. Some remote customers will be served with micro-grids, and the lines serving them will be de-energized during fire season (*e.g.*, airport beacon, Sagehen, etc.). Expulsion fuses will have been replaced, and hot taps without stirrups will be eliminated. Provided the DFA pilot is successful, DFA schemes will be in place and automation schemes will automatically transfer load during system disturbances. Much of Liberty CalPeco's oil-filled equipment will be replaced by vacuum, SF6, and/or FR3 technologies. Tree attachments will be significantly reduced, and gray wire will be eliminated.

2) A year-by-year timeline for reaching these goals;

Year	**Initiatives to Reach 10 Year Goal**
2020-2022	All initiatives detailed in the current approved WMP will make significant progress every year. Major projects like the Brockway Substation rebuild will continue as Liberty CalPeco follows its existing approved WMP. **Resiliency corridor #1** in the Kings Beach area will be established, connecting the Kings Beach diesels (with covered conductor) to the underground distribution that serves downtown Kings Beach.
2023	Initiatives detailed in the current WMP will make significant progress. Other incipient fault detection technologies may/will become commercially available and will be considered for adoption. **Resiliency corridor #2** will be established.
2024	Liberty CalPeco will continue advancing existing WMP initiatives as well as other new ideas.
2025	All initiatives detailed in the current WMP will make significant progress; other initiatives not yet known will be included as utilities learn effective ways to reduce fire threat. Other incipient fault detection technologies will become commercially available. **Resiliency corridor #3** will be established.
2026	Per the existing WMP, all expulsion fuses should be replaced by 2026.
2027	**Resiliency corridor #4** will be established.
2028	Significant progress toward eliminating CAL FIRE non-exempt hardware.
2029	**Resiliency corridor #5** will be established.
2030	Where commercially available alternatives exist, all CAL FIRE non-exempt equipment replacements will be completed.

3) A list of activities that will be required to achieve this end goal; and

To accomplish this ten year plan, Liberty CalPeco will need to:

- Complete its System Survey of every pole in Liberty CalPeco's system by October 1, 2020;
- Import System Survey data into GIS system for issue identification & work planning;
- Continue CAL FIRE non-exempt hardware replacement programs;
- Continue risk based capital planning, including identifying old high-risk equipment that should be replaced;
- Continue tree attachment removal/replacements;
- Continue and improve vegetation management program (including funding based on Senate Bill 247 fuel removal and LiDAR technology implementation);
- Design and install resiliency corridors using micro-grid technology where possible;
- Continue permitting of covered conductor projects;
- Invest in DFA research & partnerships;
- Investigate other incipient fault technologies;
- Continue investing in automation;
- Continue with fuse change-outs and CAL FIRE exempt hardware replacement; and
- Continuous reassessment of WMP looking for new and creative ideas

4) A description of how the electrical corporation's three-year WMP is a step on the way to this 10-year goal.

The three-year WMP includes many of the initiatives required to ultimately reach the 10-year goal. It also provides the framework for subsequent WMPs as Liberty CalPeco continues to gain knowledge on effective strategies. Liberty CalPeco will continue learning from successful initiatives, both in-house and at other utilities, and will work with both the Commission and other utilities to find the most effective wildfire mitigation strategies. Risk-based capital planning will continue to define the most efficient and best use of capital dollars.

III. WMP DATA SUBMISSION

A. WSD Status Report File

Liberty CalPeco has provided the following completed WSD GIS Data Schema Status Report file with this Quarterly Report: "WSD_GIS_DataSchema_StatusReport_20200909_FINAL".

B. Updated GIS Data

Liberty CalPeco has provided updated GIS data with this Quarterly Report, in the following data folder: "GIS Schema". Not all data submitted adheres to the data standards outlined in the WSD Data

Reporting Requirements document because the WSD data schema guidance was released too close to the initial reporting period.

C. Liberty CalPeco WMP Progress Metrics

Liberty CalPeco has provided updated data through July 2020 on performance and outcome metrics related to Liberty CalPeco's 2020 WMP, in the following file: "WMP Progress Tracking 2020_20200909_FINAL".

IV. CONCLUSION

Liberty CalPeco appreciates this opportunity to provide this Quarterly Report on its 2020 WMP and looks forward to working with the Commission and other stakeholders.

Respectfully submitted,

/s/ Dan Marsh

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