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PUBLIC ADVOCATES OFFICE DATA REQUEST

R. 18-10-007: Wildfire Mitigation Plans Rulemaking

Date: February 22, 2019

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Re: Data Request No. CalPA-Liberty-R1810007-002
Responses Due: February 27, 2019

INSTRUCTIONS

You are instructed to answer the following Data Requests in the above-captioned proceeding, with written, verified responses per Public Utilities Code §§ 309.5 and 314, and Rules 1.1 and 10.1 of the California Public Utilities Commission's Rules of Practice and Procedure. Restate the text of each request prior to providing the response. For any questions, email the Public Advocates Office contact(s) above with a copy to the Public Advocates Office attorney.

Each Data Request is continuing in nature. Provide your response as it becomes available, but no later than the due date noted above. If you are unable to provide a response by this date, notify the Public Advocates Office as soon as possible, with a written explanation as to why the response date cannot be met and a best estimate of when the information can be provided. If you acquire additional information after providing an answer to any request, you must supplement your response following the receipt of such additional information.

Identify the person providing the answer to each data request and his/her contact information. Responses should be provided both in the original electronic format, if available, and in hard copy. (If available in Word format, send the Word document and do not send the information as a PDF file.) All electronic documents submitted in response to this data request should be in readable, downloadable, printable, and searchable formats, unless use of such formats is infeasible. Each page should be numbered. If any of your answers refer to or reflect calculations, provide a copy of the supporting electronic files that were used to derive such calculations, such as Excel-compatible spreadsheets or computer programs, with data and formulas intact and functioning. Documents produced in response to the data requests should be Bates-numbered, and indexed if voluminous. Responses to data requests that refer to or incorporate documents should identify the particular documents referenced by Bates-numbers or Bates-range.

If a request, definition, or an instruction, is unclear, notify the Public Advocates Office as soon as possible. In any event, answer the request to the fullest extent possible, specifying the reason for your inability to answer the remaining portion of the Data Request.

DEFINITIONS

Unless the request indicates otherwise, the following definitions are applicable in providing the requested information.

1. The terms "document," "documents," or "documentary material" include, without limitation, the following items, whether in electronic form, printed, recorded, or written or reproduced by hand: reports, studies, statistics, projections, forecasts, decisions, and orders, intra-office and interoffice communications, correspondence, memoranda, financial data, summaries or records of conversations or interviews, statements, returns, diaries, calendars, work papers, graphs, notebooks, notes, charts, computations, plans, drawings, sketches, computer printouts, summaries of records of meetings or conferences, summaries or reports of investigations or negotiations, opinions or reports of consultants, photographs, bulletins, records or representations or publications of any kind (including microfilm, videotape, and records however produced or reproduced), electronic or mechanical or electrical records of any kind (including, without limitation, tapes, tape cassettes, discs, emails, and records) other data compilations (including without limitation, input/output files, source codes, object codes, program documentation, computer programs, computer printouts, cards, tapes, discs and recordings used in automated data processing, together with the programming instructions and other material necessary to translate, understand, or use the same), and other documents or tangible things of whatever description which constitute or contain information within the scope of these data requests.

2. "Relating to" means concerning, addressing, referring, discussing, commenting upon, analyzing, mentioning or involving in any way.

3. "Identify":
   a. When used in reference to a person includes stating his or her full name, his or her most recent known business address and telephone number, and his or her present title or position;
   b. When used in reference to documents includes stating the nature of the document (e.g., letter, memorandum), the date (if any), the title of the document, the identity of the author and/or the document, the location of the document, the identity of the person having possession, control or custody of the document, and the general subject matter of the document.

4. "CPUC" as used herein refers to the California Public Utilities Commission.

5. "Liberty" as used herein refers to Liberty Utilities and/or its affiliates.

DATA REQUESTS

Unless otherwise stated, all page and section references refer to Liberty Utilities' 2019 Wildfire Mitigation Plan.

Question 1

Does Liberty propose any cost- or efficiency-based metrics to track or indicate progress on any of its proposed programs in the Wildfire Mitigation Plan (for example: cost per mile reconductored, person-hours per device installed, cost per tree removed, etc.)? If so, please provide. If not, please explain why.

LIBERTY CALPECO RESPONSE: Liberty CalPeco has not proposed any cost or efficiency-based metrics to track progress. Liberty CalPeco does track various costs mentioned in its regular recorded costs. For example, cost per mile re-conductored and labor per device installed will be captured in the specific capital work order for each job performed. Liberty CalPeco also tracks the costs for tree removal in its O&M expenses.

Question 2

On page 19, *Chapter 4.3 Inspection and Maintenance, Equipment Inspection* states

> "Substations are inspected quarterly with substation relays being maintained every 3 to 6 years, depending on the type of relays as well as staffing availability."

On page 30, *Chapter 4.5.2 Identifying At-Risk Vegetation* states:

> "Since 2015, these concerns have grown with the exponential increase of tree mortality rates. Liberty CalPeco has determined that efforts to curb this issue is no longer manageable with current staffing levels. In response, costs have been identified that exceed current budgets by $1 million annually."

Will Liberty be creating additional staff positions to help with these mitigation activities? If so, please provide a description of each position including job duties, how this position will have a direct effect on wildfire mitigation efforts, and when the position is expected to be filled by. If not, please describe what activities or changes will be made to these programs to ensure adequate staffing for mitigation measures.

LIBERTY CALPECO RESPONSE: Liberty CalPeco does not plan on creating additional staff positions to help with the mitigation activities described in its WMP. Liberty CalPeco will rely on additional contract personnel to perform the proposed mitigation activities.

Question 3

On page 20, *Chapter 4.4.1 Covered Conductor* states:

"Liberty CalPeco has recently reevaluated its system design in the context of wildfire risk and decided to, where appropriate (i.e. based on wildfire risk), replace bare conductors with covered conductors. This timeline is determined on a five-year scale, thought may be adjusted with each iteration of the Plan."

a. What percent of the total number of conductors in Liberty's service territory will be replaced upon completion of this project?
b. What percent of the total number of conductors in Liberty's service territory will be replaced before the next filing of this plan?

LIBERTY CALPECO RESPONSE:

a. Approximately 2% over the five-year project.
b. Approximately 0.4%, assuming a new WMP will be submitted at the same time next year.

Question 4

On page 20, *Chapter 4.4.1 Covered Conductor*, states:

"Tahoe City Line 7300

This project comprises reconductoring of Tahoe City Line 7300 to enhance electric service reliability and improve the safety and operational integrity of the electric grid. The project includes reconductoring segments of the 15,000 feet of overhead lines out of the Tahoe City Substation as described in the pending 2019 General Rate Case (GRC) application. The prioritization for reconductoring the line was primarily driven by the need to replace failing equipment and proactively installing grid hardening assets."

How was failing equipment on Tahoe City Line 7300 identified? Please provide any reports or analysis that supports this request.

LIBERTY CALPECO RESPONSE: The reconductoring of the Tahoe City 7300 circuit is a multi-phased reliability improvement that has been ongoing since at least 2011 when Liberty CalPeco took ownership of the service territory. The project aimed to provide increased safety, reliability and operational flexibility of the electric system in Lake Tahoe.

During the severe winter storms of 2017, heavy winds, ice, and snow load took down several segments of the Tahoe City 7300 circuit that were comprised primarily of aging #2 copper or aluminum conductor. These portions of the circuit were identified as "failing" as they did not have the structural integrity to withstand the conditions in the area.

Most importantly, Liberty Utilities is looking to conduct a pilot project with covered conductor in year 1 of the WMP. The Tahoe City 7300 circuit provides a great opportunity since this phase of the

project is already permitted for construction in 2019, and is in a heavily forested area where covered conductor can help mitigate fire risk.

Question 5

On pages 20-21, *Chapter 4.4.1 Covered Conductor,* states:

> "Topaz Line 1261
>
> This project is the reconductoring of Topaz Line 1261 to enhance electric service reliability and improve the safety and operational integrity of the electric grid. The project includes reconductoring segments 7,500 feet of overhead lines out of the Topaz Substation. The project also involves pole replacement based on loading standards (GO 95) for "Heavy" and "Grade A" loading along the 7,500 feet of overhead conductors. New poles along with covered conductors will replace aging equipment over the span of the line. This circuit supports rural customers and is noted in consecutive reliability reports (2016, 2017) as the worst performing circuit within Liberty CalPeco's service territory. This area frequently experiences hazardous weather conditions such as high winds and below freezing temperatures. This paired with the deterioration of the infrastructure has resulted in higher risk of improper wire sag along with conductors breaking under ice and snow strain. These projects are presently in the "permitting stage" with construction expected to in late 2019. They were originally designed to use bare conductor replacements but based on the wildfire risk assessment, the projects will be re-designed to use covered conductors. Incorporating this element supports the Plan's goal of mitigating potential wildfire risk with the installation of covered conductors."

a. Given that both this project and Tahoe City Line 7300 reconductoring are expected to start construction in late 2019, how will both progress and schedule to completion be affected?

b. What strategies, if any, can be enacted to ensure that construction on both lines is not delayed during winter months?

c. How was "aging" equipment identified? Please include criteria and metrics evaluated, and any other considerations Liberty took into account when making these decisions.

d. Topaz Line 1261 is cited as the worst performing circuit in Liberty's territory, yet Liberty's 2017 Electric System Reliability Annual Report lists Tahoe circuits 201 and 7202 as the top two worst performing circuits. Please explain this inconsistency.

LIBERTY CALPECO RESPONSE:

a. Pending a timely decision in this proceeding, the original schedule for the two projects should not be affected.

b. Liberty CalPeco took into account winter months when creating the schedule for the various phases of the projects.

c. Aging equipment is identified as capital assets in excess of 30 years old.

d. The WMP incorrectly stated Topaz line 1261 as a worst performing line in 2017. The Topaz line 1261 was the worst performing circuit in 2015 and 2016. The 201 and 7202 circuits surpassed the Topaz line 1261 line in 2017 due to the severe winter storms experienced in the Lake area, which did not impact the Topaz line1261 as severely.

Question 6

On page 21, *Chapter 4.4.1 Covered Conductor* states that Liberty proposes to reconductor 1-2 miles per year. On the same page, the list for prioritization of distribution lines to be evaluated approximates the circuit length of each line in miles.

a. Are the number of circuit miles equal to geographic miles, or the product of the miles of line and circuits per line?

b. Please provide the number of total geographic miles for each of the nine lines listed.

c. Please provide the number of geographic miles that will be reconductored for each of the nine lines listed.

LIBERTY CALPECO RESPONSE:

a. Geographic miles.

b.

Line	Miles
Tahoe City 7300	58
Topaz 1261	54
Meyers 3400	15
640	8
Meyers 3300	53
Squaw Valley 7201	12
Brockway 5100	2
Tahoe City 7200	5
609/Truckee 7202	10

c. Same as response to Qusetion 6.b.

Question 7

On page 22, *Table 4-3 Planned Circuit Reconductoring Start Date* implies that multiple projects will be started before previous lines are fully reconductored. Please provide the underlying assumptions and rationale for reconductoring multiple lines at the same time, compared to concentrating resources on the highest priority lines.

LIBERTY CALPECO RESPONSE: Liberty CalPeco has two main regions, North Lake Tahoe and South Lake Tahoe. Each region has multiple circuits that feed shorter primary taps for service to isolated Forest Service Summer Tracts. These tracts are in mountainous, heavily wooded areas with limited access during late Fall/Winter seasons. Liberty CalPeco considers these shorter taps as its highest priority, and the reconductoring can be easily completed by regional construction crews. Once these shorter taps are complete, Liberty CalPeco can combine the forces of the North and South Tahoe regions to complete the larger main line re-conductoring projects.

Question 8

Please provide Liberty's fire risk threat maps overlaying the transmission and distribution lines that have been proposed for reconductoring in a file format readable by Google Earth or ArcGIS. Distinguish between transmission and distribution lines in your response. Please identify the specific portions of each line that will be reconductored and distinguish them by year.

LIBERTY CALPECO RESPONSE: The requested map files are attached in the Export zip folder.

Question 9

On page 23, *4.4.3 Fusing* states:

> "In order to mitigate fires, Liberty CalPeco proposes to replace conventional fuses with current limiting fuses on much of its system. Single phase, two phase and three phase lateral lines that are protected with conventional fuses will be replaced with current limiting fuse. In additional, pole mounted transformers that have conventional fuses will be replaced with current limiting fuses. There are specific locations and types of equipment, that based on operating requirements, where conventional fuses must still be used."

a. How many fuses on the total system in Liberty's service territory will remain conventional fuses?
b. What percent of the total fuses on Liberty's system is this?

LIBERTY CALPECO RESPONSE: Liberty CalPeco's goal is to replace all conventional fuses with current limiting fuses or other non-expulsion isolating devices. However, the limitations of current limiting fuses do not allow for coordination above certain fuse sizes. Therefore, Liberty

CalPeco will continue to explore new technology such as cut-out mounted reclosers or Trip-Savers to continue to allow for protection coordination while also mitigating wildfire risk.

Table 4-4, on page 23 of the WMP, identifies a nine-year timeline for replacing all conventional fuses in Liberty CalPeco's service territory. In the first few years, Liberty CalPeco will focus on replacing transformer fuses and small tap fuses that coordinate with existing protection equipment. This will allow for the continued elimination of conventional fuses while other technologies are investigated.

Question 10

On page 23, *4.4.3 Fusing* states:

> "Liberty CalPeco will implement this plan as an ongoing effort, set to complete all investment upgrades within the span of 10 years."

a. Please provide support for the assumption that 60 fuses will be able to be replaced every month.
b. Will fuse replacement continue year-round, or only during specific months with less severe weather?
c. This project is expected to span 10 years. Has Liberty considered options as to how to complete this project with an accelerated schedule (e.g., increase staffing so more fuses can be replaced each month)?

LIBERTY CALPECO RESPONSE:

a. Liberty CalPeco's Operations Department has committed to replace fuses in 30 locations in North Lake Tahoe and in 30 locations in South Lake Tahoe each month.
b. Fuse replacements can continue year-round, weather permitting.
c. Liberty has not currently considered options. For the current version of the WMP, Liberty CalPeco focused on timelines that could be completed by internal work forces. The WMP can be reviewed and updated in future revisions of the plan.

Question 11

On page 23, *4.4.6 Tree Attachment Removal* states:

> "Liberty CalPeco commits to removing approximately 60 service tree attachments per year between North and South Lake Tahoe."

a. The total number of tree attachments listed in Table 4-5 *Service Tree Attachments Approximation* is 6,265. At the rate of removing 60 service tree attachments per year, this project will not be completed for over 100 years. Does

Liberty support this timeline, or has Liberty considered options to accelerate the completion of this project?

LIBERTY CALPECO RESPONSE: Liberty CalPeco is not satisfied with this timeline, but due to the complexities in removing tree attachments, including coordinating with customers and obtaining easements, Liberty CalPeco prefers to initially focus its limited resources on projects such as re-conductoring and fuse replacement, which has a more significant impact of wildfire mitigation. Liberty will re-assess its plans for removing tree attachments in future versions of its WMP.

Question 12

On page 28, *Chapter 4.5 Vegetation Management Plan* states:

> "Liberty CalPeco has a vegetation management plan in place, which is implemented by utility staff in conjunction with third-party contractors. Recently, Liberty CalPeco increased planned expenditures for the vegetation management plan from $2.5 million to approximately $4 million annually. This particularly will aid in the frequency of inspection as well as add value to existing clearing practices as tree mortality continues to rise in the area due to climate change."

a. How specifically will the requested increase in expenditures "add value" to the existing clearing practices?
b. Please provide any calculations supporting how the frequency of inspections will increase given the total amount allocated towards more inspections.
c. Why will Liberty's vegetation management plan not be reviewed before every filing of the wildfire mitigation plan after evaluation of the data collected and trends observed over the previous year?

LIBERTY CALPECO RESPONSE:

a. The increase in expenditures will allow for more inspections and tree work resources, which will help Liberty CalPeco maintains a 3-year maintenance cycle.
b. A larger budget for inspections allows Liberty CalPeco to hire additional contract inspectors, which will allow for more trees and powerlines to be inspected every year. Liberty CalPeco plans to use five contract inspectors this year for routine inspections. Last year, Liberty CalPeco used three contract inspectors for routine inspections.
c. Liberty CalPeco's vegetation management plan is reviewed and updated on an as-needed basis.

Question 12

How often is each tree in proximity to Liberty's equipment evaluated for trimming?

LIBERTY CALPECO RESPONSE: Liberty CalPeco's current proposal in its GRC is to inspect trees on a three-year cycle.

Question 13

On page 29, *Chapter 4.5.1 Plan Components* states:

> "In terms of other specifications, Liberty CalPeco will consider the removal of any fast growing trees, rotten or diseased trees, and healthy trees hanging over or leaning towards the power lines."

a. How will these trees be identified?
b. Please explain why Liberty has not been executing this previously.

LIBERTY CALPECO RESPONSE:

a. These trees are identified during routine, CEMA, and GO 165 inspections. Trees may also be identified when reported by customers or public agencies.
b. Liberty CalPeco has been executing this under its current vegetation management practices.

Question 14

On page 30, *Chapter 4.5.2 Identifying At-Risk Vegetation* states:

> "In 2018, Liberty CalPeco implemented procedures to address the increase of tree deaths due to bark beetle infestations as a result of increased drought conditions. In 2019, the utility will submit an application to activate their first Tree Mortality Catastrophic Event MA (CEMA) to recover tracked costs incurred over the last year and anticipates the tree removal program continuing for several years. Liberty CalPeco's service territory contains two of the ten highest priority counties identified by California's Tree Mortality Task Force (El Dorado and Placer Counties)."

a. Please attach the procedures that have been established to address the increase of tree deaths due to bark beetle infestations.
b. How long have bark beetles been identified as a problem near Liberty equipment?

LIBERTY CALPECO RESPONSE:

a. Please see the attached file, "SCHEDULE A – Scope of Work."
b. Four consecutive years (2012-2015) of severe drought resulted in many stressed trees in the Tahoe basin. The weakened state of the forest combined with warmer temperatures created ideal conditions for bark beetle populations to thrive. We began realizing an increase in tree mortality in 2015 and were attempting to address the problem through routine vegetation management

inspections and off-cycle tag work. By the summer of 2017 the numbers of dead/dying trees had reached a level that could not be managed under Liberty's current vegetation management program and budget. At that time, Liberty started planning for a program to specifically address dead and dying trees. The program was launched at the end of 2017 and expenses have been tracked in a CEMA account.

Question 15

On page 30, *Chapter 4.5.2 Identifying At-Risk Vegetation* states:

> "Liberty CalPeco has determined that efforts to curb this issue is no longer manageable with current staffing levels. In response, costs have been identified that exceed current budgets by $1 million annually. Upon authorization, these additional costs will be tracked and recovered through the Tree Mortality CEMA."

How will an increase in costs lessen the issue of low staffing levels?

LIBERTY CALPECO RESPONSE: As described in response to Question 2, Liberty CalPeco will utilize contract personnel to perform mitigation activities, including the tree mortality program.

Question 16

On page 32, *Chapter 4.6.1 Weather Monitoring* states:

> "Likewise, Liberty CalPeco maintains close contact with local weather station personnel and broadcast media. As conditions raise to Extreme, all personnel are on the highest level of alert. Operating personnel are mustered to serve communication notices under high-threat conditions. With experts collaborating and closely monitoring the operations of the electrical grid, Liberty CalPeco increases situational awareness allowing for coordinated planning, response, and communications."

What are the specific protocols and procedures are enacted that increase situational awareness?

LIBERTY CALPECO RESPONSE:

Please see Section 4.7, Table 4-7 of Liberty CalPeco's WMP for the specific protocols that take place during a high-threat condition. In addition to maintaining close contact with local weather station personnel and broadcast media, Liberty CalPeco will be monitoring its newly installed local weather stations.

Question 17

On page 33, *Chapter 4.6.1 Weather Monitoring* states:

"Liberty CalPeco monitors weather, vegetation, and other conditions and takes additional monitoring and communication activities when conditions are conducive to causing wildfires. The adjective class rating tabled above is one of multiple sources of information. During the higher levels of potential wildfire threat, Liberty CalPeco prioritizes efforts to staff additional personnel and take enhanced monitoring actions to increase situational awareness and be prepared to take additional preventative and mitigating actions."

a. How will staffing of additional personnel be accomplished in a prompt manner to adequately prepare for planned mitigation actions?

b. Please specify what additional monitoring and communication activities are taken when conditions are conducive to causing wildfires.

LIBERTY CALPECO RESPONSE:

a. Liberty CalPeco management will redirect operations personnel from non-essential construction activities so they are available for mitigation measures, as needed. In addition, Liberty CalPeco will reach out to local contractors to ensure staff are available and ready to mobilize should they be needed.
b. Liberty CalPeco personnel are registered for weather alerts by county for high wind and red flag warnings. When those conditions are met, Liberty CalPeco follows protocols as outlined in its Fire Prevention Plan. Liberty CalPeco is currently installing weather stations on facilities throughout its service territory, and once completed there will be additional weather monitoring added to the plan.

Question 18

Other IOUs have developed Public Safety Power Shut-off protocols that ensure every customer will be notified in advance of a de-energization event, whether it be through phone call, SMS text, social media, or field representative welfare checks.

Please describe Liberty's current notification procedures for de-energization under "Imminent Extreme Fire Weather Conditions[1]" (i.e., notification to customers through social media, Liberty's website, local media, or other methods).

LIBERTY CALPECO RESPONSE: As part of Liberty CalPeco protocol, in advance of a Public Safety Power Shut-Off, Everbridge will be used as the primary method to notify customers (text, email, and voice messages). In addition, messages will be pushed out on: 1) Twitter 2) Facebook and 3) the planned outage section of Liberty's website. Signs will be placed in strategic locations, if possible.

Question 19

[1] Page 35, Table 4-7 PSPS Procedures

On page 37, *Chapter 4.7.1 Re-energization Strategy* states:

> "Once a decision to re-energize has been made Liberty CalPeco will: Inform all customers who were impacted by the De-energization event that power has been restored via Everbridge (email, voice, and/or text)."

Has Liberty considered the use of these services through Everbridge to notify all customers about the possibility of a PSPS event? Please explain any alternatives considered, and the reasoning for what programs were considered and rejected for customer notification protocols for "Imminent Extreme Fire Weather Conditions."

LIBERTY CALPECO RESPONSE: Yes, Everbridge will be used prior to a Public Safety Shut-off and once again after a decision is made to re-energize. Everbridge was used to notify customers prior to a about the November 21st, 2018 de-energization event in the South Lake Tahoe region. Because Everbridge covers email, voice, and text and is currently operating at Liberty CalPeco, no other technology is required.

Question 20

On page 37, *Chapter 4.8.1 Forest Resiliency Corridor Development* states:

> "This grant represents a collaborative effort between federal, state and local agencies to conduct comprehensive multi-jurisdictional forest resiliency and fuels reduction treatments that aim to 1) create resilience corridors, 2) aid in resource surveys in support of future efforts, and 3) assist in conducting forest management research along with investigating innovative technology opportunities."

a. Define "resilience corridors" as it fits with the context of this Plan.
b. Explain how resilience corridors will support Liberty's efforts in mitigating the risk of wildfires.

LIBERTY CALPECO RESPONSE:

a. Please see page 38 of Liberty CalPeco's WMP, which illustrates the Forest Resiliency Corridor concept and defines the work to be completed within each segment of the illustration.
b. Liberty CalPeco's strategy of creating resilience corridors around its powerlines leverages the ignition prevention work required by regulation with additional fuel reduction, pest management, and biomass utilization activities. These activities further reduce the risk of ignitions originating from utility infrastructure, improve forest health, provide greenhouse gas emissions reduction benefits, and reduce potential fire impacts near infrastructure, regardless of where the ignition originates.

Question 21

On page 48, *Chapter 6.2 Metrics Reporting* states:

> "Upon Plan approval, Liberty CalPeco will create targets for each of the metrics based on industry standards and benchmarks."

Please prepare and provide an end-of-year target of what Liberty will use to evaluate their success in mitigating wildfire risk for each activity Liberty has proposed.

LIBERTY CALPECO RESPONSE: Liberty CalPeco has not developed an end of year target of what it will use to evaluate its success in mitigating wildfire risk. It is premature to develop such targets, as Liberty CalPeco does not yet know which of its proposed activities will be authorized in its WMP. Once the WMP is approved, Liberty CalPeco will finalize the metric targets.

Question 22

Referencing *Table 6-1 Proposed Wildfire Prevention Plan Metrics* on pages 48-49:

a. How will "determining if plan is on schedule" quantitatively or qualitatively determine the activities' effectiveness in reducing risk?
b. If the Plan is successful, the number of wildfire risk events should be reduced. Since these incidents cannot be accounted for, how will it be assessed if the plan has reduced risk events?
c. How will the value of vegetation management investment and inspections be determined?
d. What data will be collected by monitoring the number of PSPS events over time as an indicator of changing climatic and weather patterns?

LIBERTY CALPECO RESPONSE: Once Liberty CalPeco's WMP is approved, Liberty CalPeco will be able to develop specific metrics and specific data to be collected to monitor its effectiveness in reducing wildfire risk.

Please send your response to the Originator, and a copy of your response to Project Coordinator and e-copies to the following Public Advocates Office representatives:

(none)

Please provide the above information as it becomes available but no later than the due date identified above. If you are unable to provide the information by this date, please notify the Originator **at least** 3 days before the data request is due and provide your best estimate of when the information can be provided. Please identify the person who provides the response and his/her phone number and email address.

END OF REQUEST

SCHEDULE A - SPECIFICATIONS AND SCOPE OF WORK:

Fire Hazard and Public Safety Prevention Measures Due to Tree Mortality;

Accelerated Vegetation Inspections

i. Methodology

On October 30, 2015 Governor Edmund G. Brown proclaimed a state of emergency to exist in the State of California due to the vast tree mortality in several regions of the state. The tree mortality was caused by the long-term drought, which made trees susceptible to epidemic infestations of native bark beetles. At the time of the emergency proclamation, the United States Forest Service estimated that over 22 million trees were dead. According to the United Stated Department of Agriculture, the number of dead tree in California had grown to 102 million by November 2016.

Liberty CalPeco's service territory contains two of the ten highest priority counties identified by California's Tree Mortality Task Force, and the tree mortality in these two counties has grown exponentially since 2015. In Placer County, tree mortality has grown from 80,000 dead trees in 2015 to 557,000 dead trees in 2016, and in El Dorado County tree mortality has grown from 200,000 dead trees in 2015 to 1,359,000 dead trees in 2016.

Liberty CalPeco's current Vegetation Management Plan is structured around a three-year maintenance cycle. Due to the nature of the current VMP and the risks associated with increasing tree mortality in the vicinity of Liberty's facilities, Liberty CalPeco has identified the need to inspect for dead and dying trees throughout its entire system by performing an accelerated inspection of the circuits.

ii. Scope of Work

Contractor shall survey Liberty CalPeco's electrical distribution and sub-transmission facilities as directed by the Vegetation Program Manager. The survey will consist of a Level 1 inspection, involving a basic visual ground inspection of trees or populations of trees to identify dead and dying trees. Additionally, contractor shall inspect for imminent hazards, GO 95 Rule 35 or PRC 4293 compliance infractions. Some examples include, but are not limited to clearance encroachments, large cavities in trees, dead or broken branches, fungal fruiting bodies (conks), large cracks, or severe leans. Work will be inventoried and prescribed for work to be issued to Liberty CalPeco's current tree contractor as needed and depending on the tree condition identified.

The following list details common types of tree conditions that may be observed within Liberty CalPeco's service territory that will be identified and prescribed for tree work during the Accelerated

Level 1 Assessment. This list may be used as reference, but is not intended to be exhaustive. The Contractor should also incorporate knowledge, professional judgment and skill when performing the inspection.

- Dead Trees or Dead parts of Green trees
    - Parts included dead limbs overhanging conductors
    - Dead tops
    - Dead trees
    - Trees that are >50% dead
- Defects in Live Trees or parts of Live Trees
    - A crack that goes completely through a stem or branch
    - Weak branch unions (V-shaped) that is also associated with a crack completely through the branch or attachment
    - Decay where less than 1/3 of the tree or part's diameter is sound (2/3 or greater is affected by the decay)
    - Presence of Fungal Fruiting Bodies –
        - Phaeolus schweinitzii (Velvet Top) conks present (normally occurs on Jeffrey and Lodgepole pine) – One or more conks
        - Echinodontium tinctorium (Indian Paint Fungus) – one or more conks on true fir or hemlock
        - Laetipous sulphureus (Chicken of the Woods) – one or more conks; normally effects lodgepole pine or Jeffrey Pine
        - Phellinus tremulae – occurs on mature and over-mature aspen trees; trees with one or more large conks (>6" size conks)
    - Cankers
        - With associated fruiting bodies
        - Single or multiple cankers with decay that affects more than 1/2 of a trees circumference
    - Root Damage and Root Disease
        - Recently leaning trees or trees with evidence of recent root lifting or soil movement
        - Inadequate root support, with more than ½ of the root system within the drip line severed, broken, undermined or decayed by erosion or excavation.
    - Leans
        - Any tree leaning with an angle greater than 45° from vertical
        - Uncorrected lean compounded by an unbalanced crown shape weighted in the direction of the lean

iii. <u>Process for Performing Inspections along Distribution Circuits</u>

1. Contractor shall survey the Liberty CalPeco's distribution and sub-transmission systems, document, and inventory dead and dying trees that may pose an increased risk to the facilities. Additionally, contractor shall document and inventory compliance clearance encroachments and any other imminent vegetation related hazards to the electrical facilities (E.g. large cavities in trees, dead or broken branches, fungal fruiting bodies (conks), large cracks, or severe leans in whole tree or parts of trees).

2. The inspection shall originate at the Substation or point of electrical supply to Liberty CalPeco from which the circuit is supplied electricity and continue away from the substation in the direction of the flow of electricity.

3. Contractor shall document and inventory all pertinent information described in Section iv – Data Collection

4. Contractor shall make appropriate tree trimming or removal prescriptions necessary to achieve conformance with the regulation. Contractor shall use Liberty CalPeco's Unit Tree Work Matrix when prescribing tree trimming or removal (See Section v).

5. Contractor shall mark each tree requiring trimming or removal with Fluorescent Pink Tree Marking paint. ***All trees requiring trimming to alleviate the danger will be designated by marking a dot on the tree on the power line side at 4.5 feet above ground. All trees that require removal to alleviate the danger will be designated by marking a "x" on the tree on the power line side at 4.5 feet above ground.***

iv. <u>Data Collection and Management</u>

Contractor shall verify, revise or collect all pertinent tree information as requested by Liberty CalPeco. Data collection field tablets and software will be provided by Liberty CalPeco and will be stored and maintained in Liberty CalPeco's databse.

v. <u>Targets and Scheduling</u>

The Contractor shall adhere to Liberty CalPECo's annual plan for accelerated inspection work and shall report progress of completed work on the last day of each month. The contractor shall adhere to monthly target schedules as required by Liberty CalPECo. Liberty CalPECo reserves the right to make changes to the circuit work schedule at any time and for any reason.

The following circuits are anticipated for accelerated inspection work vegetation management activities for 2018:

Circuit Name and Number	Estimated Line Miles	Month of Pre-Inspection Completion
Tahoe City 5201	21.4	February

Tahoe City 7300	57.7	April
Muller 1296	43.5	April
Meyers 3400 S.1 & 2	27	May
Tahoe City 7100	13.2	May
Kings Beach – Tahoe City 625	15.4	June
Kings Beach – Truckee 650	14.2	June
Northstar 8600	16.5	June
Stateline 2200	0.25	June
Stateline 2300	3	June
Stateline 3101	15.7	June
Truckee – Squaw Valley 132	12.2	July
Stateline 3501	13.8	July
Tahoe City – Squaw Valley 629	6.3	August
Truckee - Squaw Valley 609	9.5	August
Truckee 7202	12.1	August
Squaw Valley 8200	4.9	September
Squaw Valley 8300	1.5	September
California 204	3.6	September
Washoe/Farad 7800	6	September
Glenshire 7400	32.6	October
Glenshire 7600	5.2	November
Marble – Portola 619	6.05	November
Stateline – Meyers 640	7.9	November

vi. <u>Customers</u>

1. Liberty Utilities places a very high priority on the good will of its customers. They are to be treated with courtesy. Prior to performing tree inspections on private property, the Contractor shall first make a reasonable attempt to explain to the customer: The Company he/she represents, that they have been contracted with Liberty CalPeco to perform tree inspections and that they will be on the customer's property briefly to accomplish this work.

2. Whenever a customer complaint/claim is received by the Contractor, the Contractor shall immediately notify the Company Project Manager. The Contractor's Supervisor, upon receipt of the complaints/claims, shall investigate the matter within a 48 hour period and make a diligent effort to resolve the complaint/claim. Liberty CalPeco shall be notified of

resolutions or if no resolution is reached and shall have the right to resolve or not resolve the matter in its discretion.

3. If Contractor cannot assess a tree for access and/or any other reason, the Contractor shall immediately initiated the following steps:

    a. Inspector shall attempt to make contact with the customer. If contact cannot be made and the inspection be accomplished due to the inability to access the property, inspector shall complete a *Vegetation Management – Contact Attempt Tracking Form* and submit it to the Vegetation Project Manager. A copy of the form will be provided by the Company to the Contractor prior to the start of work.

    b. Refusals: If the inspector is denied permission to access the property from the customer the information shall be documented and submitted to the Company Project Manager. The Contractor shall complete and document all contact and attempts to resolve the refusal using a *Vegetation Management Refusal Form* and provide the documentation to the Vegetation Project Manager. The contractor shall notify the Company no later than 3 working days after the refusal is initiated. A copy of the form will be provided by the Company to the Contractor prior to the start of work.

vii. Obtaining Permission for the Removal or Major Trimming of Trees

Owners of trees that require removal or that require trimming which may remove more than 30% of a tree's overall live crown or height shall be notified by the Contractor. The Contractor shall petition the landowner to sign Liberty Utilities' *Tree Work Notification Form* completed and filled-in as appropriate for the work prescribed by the Contractor. Should written notification by the owner be unattainable and no other reasonable options exist, the Contractor shall document on a *Vegetation Management - Contact Attempt Tracking Form* all attempts made to contact the owner. The Contractor shall submit a copy of the form and photo documentation of the tree and facilities to the Company Project Manager.

Completed Tree Work Notification Forms and Contact Attempt Forms shall be treated as Confidential Information. These forms shall be submitted to the Company Project Manager on a weekly basis for filing and retention.

viii. Safety to the Public

The Contractor shall at all times conduct the work in a manner so as to safeguard the public from injury to persons and property damage. The Contractor is to use all necessary protection for its

employees and to guard against interference with the normal operation of power circuits. Should the Contractor cause damage to the Company's facilities or be involved in an accident involving its facilities or a member of the public, while performing work for the Company, the Contractor shall notify the Project Manager as soon as possible.

ix. Supervision of Contractor Employees

Contractor shall provide adequate supervision to its employees at all times and at no additional cost to the Company. Contractor's supervisor shall verify that their employees work meets Liberty Utilities standards, applicable State Regulations, and this Scope of Work.

x. Personnel and Equipment Requested by Liberty Utilities

Personnel

Liberty CalPeco is requesting the Contractor to provide the following personnel full-time to perform the required work during the designated time periods:

January 1st through March 31st:

- Two Utility Forester I or II

April 1st through December 31st:

- Three Utility Forester I or II

Unless otherwise excused or agreed to by Liberty CalPeco, Contractor shall provide qualified employees to perform the required work. Depending on scheduling and timing, the Company and Contractor may agree to increase or decrease the number of requested staff to ensure that the inspection is completed within the designated time frame. Contractor shall provide documentation of the qualification of the contracted employees to Liberty CalPeco prior to performing work, but any such review by the Company shall not relieve Contractor of its obligations to provide experienced and qualified and fully trained employees on the job, nor shall such review constitute any acceptance, acknowledgement or waiver on the part of liberty CalPeco that such employees are competent and or qualified. All contractor employees shall be trained in advance by the Contractor and at the Contractor's expense. Liberty Utilities will reserve the right to reasonably request the removal of any Contractor employee at any time throughout the term of the contract and Contractor shall remove such employees at Liberty CalPeco's request at no additional cost or expense to the Company.

Materials

Contractor shall supply all materials required to perform the duties of the contract. Materials required to be supplied to employees by the Contractor include, but are not limited to the following:

- Class E Hardhats
- DOT approved safety vest
- Range finder or similar equipment for measuring heights and distances
- Minimum of two 18" tall orange safety cones with reflective strips
- Digital Camera
- 4X4 vehicle
- Handheld devices or computers necessary to collect required data
- Safety glasses
- Diameter tape
- Cellular phone
- Backpack Firefighting pump with the ability to carry up to five gallons of water (during fire season)
- Shovel
- Fire rake
- Tree marking paint
- Office supplies

xi. Tree Trimming and Removal Prescriptions

TRIMS

Brush Trim (BT) – Vegetation that is less than 4" diameter at breast height (dbh) that is trimmed to obtain 10' to 15' of clearance from the conductors. Brush units are equal to 10 cubic yards of material when stacked. Brush units are inventoried in increments of .25 units.

Top Direct/Crown Reduction (TD) – Removal of the top portion of the tree to lessen the overall height of the tree to achieve desired clearances of 10' to 15' from the conductors. These trees are normally growing directly below the conductors.

Side Direct (SD) – Removal of lateral branches originating from the main trunk/bole of the tree when only the side portion of the tree is growing into the minimum allowable distance to the power lines. On conifers, limbs shall be removed back to the trunk/main bole of the tree. On deciduous trees, limbs shall be pruned back to a proper lateral branch or to the trunk/main bole of the tree. Desired clearances at the time of pruning shall be between 10' and 15' from conductors.

"V" Trim (VT) – Removal of entire lateral branches from the center of the tree to main leaders, while side branches are allowed to grow on the outside of the tree to obtain desired clearance of 10' to 15' at the time of pruning.

Overhang (OV) – Removal of branches directly overhanging the open wire conductors that are within 10 feet to the wires and require pruning for desired clearances. Branches in this category shall not be dead and have no structural defect.

Coated Service/ Aerial Cable (CT) – Trimming of branches for coated service drop, coated aerial cable or support wires to reduce strain or abrasion on wires only. Clearances at the time of pruning shall be approximately 2 feet.

REMOVALS

Brush Removals (BR) – Removal of vegetation that is less than 4" DBH. Final cuts are made at or below 4.5 feet to the ground. Stumps will be treated with either Sporax (conifers) or herbicide (deciduous). Brush units are equal to 10 cubic yards of material when stacked. Brush units are inventoried in increments of .25 units.

Tree Removals/Non-Hazard (R) – Removing 100% of the canopy of a tree and the final cuts are made at or below 4.5 feet above the ground. Stumps are treated with either Sporax (conifers) or herbicide (deciduous trees). Trees in the "R" category will typically be trees with in the right-of-way that require removal to obtain clearance requirements of 10 to 15 feet at the time of trimming. This type of work includes removal of green trees within 10 feet of the conductors that do not overhang the conductors. These trees have no evidence of structural defect and are not dead. Units will be based on the following size classes:

R1 4.0" < 11.9" dbh

R2 12.0" < 23.9" dbh

R3 24" < 35.9" dbh

R4 >36" dbh

Note – R3 and R4 tree removals will occur in extremely rare situations.

FACILITY PROTECTS

Facility Protect Overhang Minor (FOA) – Pruning or removal of dead or structurally unsound limbs located within any distance to and that are above the conductor and that have the potential to fail into the facilities. Limbs must be of sufficient size to cross-phase.

- Minor work: Removing a portion of the tree where the work removes 1/3 or less of the crown and the final cuts are made more than 4.5 feet above the ground

Facility Protect Overhang Major (FOB) –Pruning or removal of dead or structurally unsound limbs located within any given distance to and that are above the conductor and that have the potential to fail into the facilities. Limbs must be of sufficient size to damage facilities.

- Major work: Removing a portion of the tree where the work removes 1/3 or more of the crown and the final cuts are made more than 4.5 feet above the ground.
- Removal of all branches occurring over the conductors (clear to sky).

Facility Protect Trim Minor (FTA) – Removal of a portion of a tree not overhanging the conductors, but located within any given distance to the conductors that has the potential to fail and come into contact with the facilities due to structural defect or tree mortality. Tree work in this category may include:

- Removing a portion of a tree where the work removes 1/3 or less of the crown and the final cuts are made more than 4.5 feet above the ground.
- Minor facility protect trims can include but are not limited to removing one or more structurally unsound branches, removing a dead top on a live tree, removing a single stem of a multi-stemmed tree, removing a forked top, etc.

Facility Protect Trim Major (FTB) – Removal of a portion of a tree not overhanging the conductors, but located within any given distance to the conductors that has the potential to fail and come into contact with the facilities due to structural defect or tree mortality. Tree work in this category may include:

- Removing a portion of a tree where the work removes more than a 1/3 of the crown and the final cuts are made more than 4.5 feet above the ground.
- Major facility protect trims can include but are not limited to removing multiple structurally unsound branches, removing all of the canopy of a tree but leaving the bole standing, removing a single large branch that includes more than 1/3 of the crown, etc.

Facility Protect Removal/Remove and Treat (F) – Removing 100% of the canopy of a tree and the final cuts are made at or below 4.5 feet above the ground. Stumps are treated with Sporax (conifers). Trees in the "F" category will typically be trees within any given distance to the conductors that require removal to prevent the tree or the portions of the tree from failing and coming into contact with the electrical conductors. This type of work includes trees requiring removal that show evidence of structural defect making them susceptible to failure or are dead. Units will be based on the following size classes:

F1 4.0" < 11.9" dbh

F2 12.0" < 23.9" dbh

F3 24" < 35.9" dbh

F4 >36" dbh

WORK DIFFICULTY CLASSES FOR REMOVALS

As described below, in addition to a trim type, all work prescribed for **Removal** or **Facility Protection** will be categorized according to the difficulty of work completion.

Work Difficulty – Class A

- Property owner does all clean-up
- Drop and walk, tree is felled
- Debris clean-up is only lop and scatter
- Debris clean-up is only piling of brush
- Chipping debris less than 4 inch diameter where the location is chipper accessible (within 100 ft.), and it is a small volume of debris (equal to or less than 10 cubic yds. when stacked)

Work Difficulty – Class B

- All other work not in Class A, for example:
- Work must be pieced, lowered, tied off and directed
- Large wood must be cut into numerous smaller sections
- Chipping debris less than 4 inch diameter where the location is chipper accessible (within 100 feet), and it is large volume of debris (more than 10 cubic yards when stacked)

***Note**: Work that has any activity falling into Class B should be classified as "B". For example, if a tree must be pieced down but the property owner will do all clean up; the Work Difficulty is still Class B.*

***Note**: By contract, a Tree Contractor is responsible to clean-up debris less than 4 inches in diameter unless specified otherwise in the Tree Work Notification Form or on the work request.*

***Note: Multi-stemmed trees** are defined as trees connected at or above ground level where there is no evidence of soil existing between the boles of the trees. For the purpose of trimming, multi-stemmed trees with no evidence of soil separating the trees will be inventoried as one unit. For the purpose of removal, multi-stemmed trees that split below 4.5 feet, each stem will be inventoried as an individual unit; multi-stemmed trees that split above 4.5 feet from the ground will be inventoried as one unit.*