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March 10, 2021

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Re: CA R.18-10-007  
CalAdvocates-PacifiCorp-2021WMP-01A

Please find enclosed PacifiCorp's responses to CalPA data requests 1.1-1.13. Also provided are Attachments CalPA 1.4, 1.5, 1.10, 1.11, and 1.12 –(1-4).

If you have any questions, please call me at (503) 813-7314.

Sincerely,

\_\_\_\_\_/s/\_\_\_\_

Pooja Kishore

Manager, Regulation

R.18-10-007/ PacifiCorp  
March 10, 2021  
CalAdvocates-PacifiCorp-2021WMP-01 – 1.1

### **CalPA Data Request 1.1**

Please provide a list of all publicly owned electric utilities and electrical cooperatives (collectively, POUs) that you supply in part or whole.

### **Response to CalPA Data Request 1.1**

PacifiCorp is not a service provider to any publicly owned electric utilities and electrical cooperatives (collectively, POUs).

Despite PacifiCorp's diligent efforts, certain information protected from disclosure by the attorney-client privilege or other applicable privileges or law may have been included in its responses to these data requests. PacifiCorp did not intend to waive any applicable privileges or rights by the inadvertent disclosure of protected information, and PacifiCorp reserves its right to request the return or destruction of any privileged or protected materials that may have been inadvertently disclosed. Please inform PacifiCorp immediately if you become aware of any inadvertently disclosed information.

### **CalPA Data Request 1.2**

For each publicly owned electric utility and electrical cooperative (collectively, POU) to which you supply power, please respond to the following:

- (a) Have you coordinated with the POU to ensure resilience of the POU during a public safety power shutoff (PSPS) event that you initiate? Please describe the nature of this coordination if so.
  
- (b) In 2020, what coordination, planning, or other activities took place between you and the POU to mitigate the effect of a potential PacifiCorp-initiated PSPS event on the POU and its customers?

### **Response to CalPA Data Request 1.2**

Not applicable. Please see the Company's response to CalPA Data Request 1.1.

### **CalPA Data Request 1.3**

Regarding your wildfire risk model:

- (a) Have you developed a risk-estimation model that quantifies the wildfire risk level of each of your circuits?
- (b) If the answer to question 3(a) is yes, explain the finest level physical granularity (i.e. individual equipment, pole/tower, circuit-segment, circuit) with which you assess the wildfire risk level of your facilities.
- (c) If the answer to question 3(a) is yes, explain the finest level of temporal granularity (i.e. day, week, month, year) with which you assess the wildfire risk level of your facilities.
- (d) How are transmission and distribution circuits treated differently in the model referred to in question 3(a)?
- (e) Does the model in question 3(a) allow you to rank circuits or circuit-segments by risk level?
- (f) Does the model in question 3(a) rank transmission and distribution circuits together or separately?
- (g) Are your wildfire risk model's outputs for transmission and distribution circuits comparable to each other?

### **Response to CalPA Data Request 1.3**

- (a) Yes, the Company's 2021 Wildfire Mitigation Plan (WMP) Update, Section 4.5.1, articulated the Localized Risk Assessment Model (LRAM).
- (b) The LRAM model calculates risk scores at the zone of protection (ZOP) level, which is a subsection of a circuit with control, either programmatically, automatically or manually.
- (c) The model can calculate the combined climate and utility risk, which it calls the combined score. This is performed at the granularity for which the climate variables are available, which are typically hourly forecasts.
- (d) To-date, the company has prioritized the distribution risk modeling first and anticipates performing a comparable process for transmission assets that were done for distribution assets using the LRAM.

- (e) Yes, the company is able to rank zones of protection across numerous metrics including Fire Weather Risk, Tree Canopy Risk, Vegetation Outage, and a Combined Risk which synthesizes weather, vegetation, and utility risks into a final metric.
- (f) The model will treat transmission segments separately.
- (g) The transmission and distribution risk scores, as planned, are anticipated to be comparable.

### CalPA Data Request 1.4

Provide an Excel table of all distribution circuits existing in 2020 (as rows) that includes the following information in separate columns. Items (a) through (k) are features of the circuit. Items (l) through (ggg) pertain to work performed for each circuit.

- (a) Circuit Name
- (b) Circuit ID Number
- (c) Total Circuit Miles
- (d) Circuit Miles in non-High Fire Threat District (HFTD) Areas
- (e) Circuit Miles in HFTD Tier 2
- (f) Circuit Miles in HFTD Tier 3
- (g) Circuit Voltage
- (h) Wildfire Risk Level<sup>1</sup>
- (i) Circuit SAIDI (System Average Interruption Duration Index) for 2020
- (j) Circuit SAIFI (System Average Interruption Frequency Index) for 2020
- (k) Circuit MAIFI (Momentary Average Interruption Frequency Index) for 2020
- (l) Miles of Enhanced Vegetation Management (EVM) Work in Non-High-Fire Threat District (HFTD) Areas in 2020
- (m) Miles of EVM Work in HFTD Tier 2 in 2020
- (n) Miles of EVM Work in HFTD Tier 3 in 2020
- (o) Miles of Routine Vegetation Management Work in Non-High-Fire Threat District (HFTD) Areas in 2020
- (p) Miles of Routine Vegetation Management Work in HFTD Tier 2 in 2020
- (q) Miles of Routine Vegetation Management Work in HFTD Tier 3 in 2020
- (r) Miles of Covered Conductor Installed in Non-HFTD in 2018
- (s) Miles of Covered Conductor Installed in Non-HFTD in 2019
- (t) Miles of Covered Conductor Installed in Non-HFTD in 2020
- (u) Miles of Covered Conductor Installed in HFTD Tier 2 in 2018
- (v) Miles of Covered Conductor Installed in HFTD Tier 2 in 2019
- (w) Miles of Covered Conductor Installed in HFTD Tier 2 in 2020
- (x) Miles of Covered Conductor Installed in HFTD Tier 3 in 2018
- (y) Miles of Covered Conductor Installed in HFTD Tier 3 in 2019
- (z) Miles of Covered Conductor Installed in HFTD Tier 3 in 2020
- (aa) Number of Poles Replaced in Non-HFTD in 2018
- (bb) Number of Poles Replaced in Non-HFTD in 2019
- (cc) Number of Poles Replaced in Non-HFTD in 2020
- (dd) Number of Poles Replaced HFTD Tier 2 in 2018
- (ee) Number of Poles Replaced HFTD Tier 2 in 2019
- (ff) Number of Poles Replaced HFTD Tier 2 in 2020
- (gg) Number of Poles Replaced HFTD Tier 3 in 2018

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<sup>1</sup> This refers to the risk calculated for each given circuit, as an output of your quantitative wildfire risk model, if the answer to Question 3(a) is “yes”.

- (hh) Number of Poles Replaced HFTD Tier 3 in 2019
- (ii) Number of Poles Replaced HFTD Tier 3 in 2020
- (jj) Miles of Underground Conductor Installation in Non-HFTD in 2018
- (kk) Miles of Underground Conductor Installation in Non-HFTD in 2019
- (ll) Miles of Underground Conductor Installation in Non-HFTD in 2020
- (mm) Miles of Underground Conductor Installation in HFTD Tier 2 in 2018
- (nn) Miles of Underground Conductor Installation in HFTD Tier 2 in 2019
- (oo) Miles of Underground Conductor Installation in HFTD Tier 2 in 2020
- (pp) Miles of Underground Conductor Installation in HFTD Tier 3 in 2018
- (qq) Miles of Underground Conductor Installation in HFTD Tier 3 in 2018
- (rr) Miles of Underground Conductor Installation in HFTD Tier 3 in 2019
- (ss) Miles of Underground Conductor Installation in HFTD Tier 3 in 2020
- (tt) Miles of Light Detection and Ranging (LiDAR) Inspection in Non-HFTD in 2020
- (uu) Miles of LiDAR Inspection HFTD Tier 2 in 2020
- (vv) Miles of LiDAR Inspection HFTD Tier 3 in 2020
- (ww) Number of Detailed Overhead Inspections in Non-HFTD in 2020
- (xx) Number of Detailed Overhead Inspections HFTD Tier 2 in 2020
- (yy) Number of Detailed Overhead Inspections HFTD Tier 3 in 2020
- (zz) Number of Sectionalization Devices Installed in Non-HFTD in 2018
- (aaa) Number of Sectionalization Devices Installed in Non-HFTD in 2019
- (bbb) Number of Sectionalization Devices Installed in Non-HFTD in 2020
- (ccc) Number of Sectionalization Devices Installed HFTD Tier 2 in 2018
- (ddd) Number of Sectionalization Devices Installed HFTD Tier 2 in 2019
- (eee) Number of Sectionalization Devices Installed HFTD Tier 2 in 2020
- (fff) Number of Sectionalization Devices Installed HFTD Tier 3 in 2018
- (ggg) Number of Sectionalization Devices Installed HFTD Tier 3 in 2019
- (hhh) Number of Sectionalization Devices Installed HFTD Tier 3 in 2020

#### **Response to CalPA Data Request 1.4**

Please refer to Attachment CalPA 1.4. As a note, specific values were not included for (ww) – (yy) above. PacifiCorp’s distribution equipment inspections are not performed by circuit but rather by geographic boundaries (equivalent to quarter sections). Tier designated inspection results were provided in Table 2 of the 2021 Wildfire Mitigation Plan Update Performance Metrics document.

Also, PacifiCorp has limited momentary interruption calculation capability at the circuit level, but calculates momentary indices aggregated to the state level on an annual basis, due to the sparse data.

R.18-10-007/ PacifiCorp  
March 10, 2021  
CalAdvocates-PacifiCorp-2021WMP-01 – 1.5

### **CalPA Data Request 1.5**

Provide an Excel table of all transmission circuits (as rows) that includes the same information listed above in Question 4(a)-(ggg).

### **Response to CalPA Data Request 1.5**

Please refer to Attachment CalPA 1.6. System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) metrics are not relevant for transmission circuits, so they are not provided.

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### **CalPA Data Request 1.6**

For each WMP initiative listed below, please state how the Wildfire Risk Levels provided in the Excel spreadsheet for Questions 4 and 5 influenced where you performed work in 2020 and how work was sequenced.

- (a) EVM.
- (b) Covered conductor installation.
- (c) Pole replacement.
- (d) Undergrounding.
- (e) Grid sectionalization.
- (f) Detailed inspections of distribution assets.
- (g) Detailed inspections of transmission assets.
- (h) Aerial inspections of transmission assets.
- (i) Aerial inspections of distribution assets.
- (j) LiDAR inspections of distribution assets.
- (k) LiDAR inspections of transmission assets.

### **Response to CalPA Data Request 1.6**

PacifiCorp's Combined Score modeling, developed from its Localized Risk Assessment Model (LRAM), was just completed and is being cascaded through construction and mitigation plans for modifications. Work performed in 2020 was prioritized based upon Public Safety Power Shut-off (PSPS) risk coincident to Tier 3 designation. The company did not use these scores so is unable to produce values for such a table.

**CalPA Data Request 1.7**

For each WMP initiative listed below, please complete Table A below, showing how much of the work you completed in 2020 was performed on distribution circuit-segments in each risk quintile:

- (a) EVM.
- (b) Covered conductor.
- (c) Pole replacement.
- (d) Undergrounding.
- (e) Grid sectionalization.
- (f) Climbing inspections.
- (g) Aerial inspections.
- (h) LiDAR inspections.

Table A		
Initiative: _____		
Quintile of circuit-segments, ranked by wildfire risk	Explanation	Amount of work completed in 2020
0 – 20	Top quintile of riskiest circuit-segments, which account for the first 20 percent of cumulative wildfire risk	
21 – 40	Second quintile of riskiest circuit-segments, which account for percentiles 21 to 40 of cumulative wildfire risk	
41 – 60	Third quintile of riskiest circuit-segments, which account for percentiles 41 to 60 of cumulative wildfire risk	
61 – 80	Fourth quintile of riskiest circuit-segments, which account for percentiles 61 to 80 of cumulative wildfire risk	
81 – 100	Last quintile of riskiest circuit-segments, which account for percentiles 81 to 100 of cumulative wildfire risk	
Total	Entire service territory	

**Response to CalPA Data Request 1.7**

Work performed in 2020 was prioritized based upon Public Safety Power Shut-off (PSPS) risk coincident to Tier 3 designation. The company did not use these scores so is unable to produce values for such a table. However, Tier 3 designation implies circuits are within the top quintile, and so one could assume that all work completed aligns with that designation.

Despite PacifiCorp's diligent efforts, certain information protected from disclosure by the attorney-client privilege or other applicable privileges or law may have been included in its responses to these data requests. PacifiCorp did not intend to waive any applicable privileges or rights by the inadvertent disclosure of protected information, and PacifiCorp reserves its right to request the return or destruction of any privileged or protected materials that may have been inadvertently disclosed. Please inform PacifiCorp immediately if you become aware of any inadvertently disclosed information.

**CalPA Data Request 1.8**

For each WMP initiative listed below, please complete Table B below, showing how much of the work you completed in 2020 was performed on transmission circuit-segments in each risk quintile:

- (a) EVM.
- (b) Covered conductor.
- (c) Pole replacement.
- (d) Undergrounding.
- (e) Grid sectionalization.
- (f) Climbing inspections.
- (g) Aerial inspections.
- (h) LiDAR inspections.

Table B		
Initiative: _____		
Quintile of circuit-segments, ranked by wildfire risk	Explanation	Amount of work completed in 2020
0 – 20	Top quintile of riskiest circuit-segments, which account for the first 20 percent of cumulative wildfire risk	
21 – 40	Second quintile of riskiest circuit-segments, which account for percentiles 21 to 40 of cumulative wildfire risk	
41 – 60	Third quintile of riskiest circuit-segments, which account for percentiles 41 to 60 of cumulative wildfire risk	
61 – 80	Fourth quintile of riskiest circuit-segments, which account for percentiles 61 to 80 of cumulative wildfire risk	
81 – 100	Last quintile of riskiest circuit-segments, which account for percentiles 81 to 100 of cumulative wildfire risk	
Total	Entire service territory	

**Response to CalPA Data Request 1.8**

Work performed in 2020 was prioritized based upon Public Safety Power Shut-off (PSPS) risk coincident to Tier 3 designation. The company did not use these scores so is unable to produce values for such a table. However, Tier 3 designation implies circuits are within the top quintile, and so one could assume that all work completed aligns with that designation.

Despite PacifiCorp's diligent efforts, certain information protected from disclosure by the attorney-client privilege or other applicable privileges or law may have been included in its responses to these data requests. PacifiCorp did not intend to waive any applicable privileges or rights by the inadvertent disclosure of protected information, and PacifiCorp reserves its right to request the return or destruction of any privileged or protected materials that may have been inadvertently disclosed. Please inform PacifiCorp immediately if you become aware of any inadvertently disclosed information.

## CalPA Data Request 1.9

Regarding your PSPS circuit modeling capabilities:

- (a) Please describe your present circuit modeling capabilities with regard to PSPS thresholds (“PSPS circuit modeling capabilities”), including with what level of granularity they are able to determine how circuit hardening efforts or other changes to a line segment will affect PSPS thresholds.
- (b) Please describe any improvements to the present PSPS circuit modeling capability that you expect to enact in 2021.
- (c) Please describe the expected state of your PSPS circuit modeling capabilities at the conclusion of the 2020-2022 WMP cycle.

## Response to CalPA Data Request 1.9

- (a) PacifiCorp is leveraging the fire weather risk score from the Localized Risk Assessment Model (LRAM) to gauge Public Safety Power Shut-off (PSPS) risk at any given zone of protection or circuit. The fire weather risk score incorporates the gust, Fostberg Fire Weather Index (FFWI) and Keetch-Byrum Drought Index (KBDI) intensity at any given location and those are the exact variables the company uses when evaluating the need for a PSPS event. Consequently, the fire weather risk score can be thought of as a frequency (or probability) of weather which necessitates a PSPS event. The second component of the PSPS risk is the number and type of customers that would be affected by a PSPS event. Together these two components make up the probability of a PSPS event occurring and the consequence (fire weather score multiplied by customers affected) for which we denote PSPS risk at the zone of protection level.

The factors that affect the PSPS thresholds are the fire climatology and the historical wind patterns and the status of equipment hardening. The company is still in the process of evaluating how effective various system upgrades, like covered conductor, are at reducing outage and ignition events. However, as more and more of the grid is upgraded, there will be a larger quantity of data to correlate system upgrades with reliability. Once the company has a strong understanding of the system fragility after hardening efforts, it can begin re-evaluating the current PSPS thresholds by analyzing historical winds and outage events.

- (b) PacifiCorp is planning to leverage the fire consequence maps being provided by the Pyregence team to better understand and quantify wildfire and PSPS risk. This work is described in more detail in Section 4.4.1, Pilot 10 – Pyregence Ignition Modeling in the 2021 Wildfire Mitigation Plan Update

(WMP), filed March 5, 2021. The core of the methodology lies in overlaying our circuitry broken up by zones of protection over hourly fire consequence maps (burned area, volume, and structures) to create forecasts localized at protection equipment. Assuming that a PSPS event is necessary this view will allow the company to target specific “hot spots” on its circuitry where ignitions would result in the most damaging fires. PacifiCorp can also combine this information with the risk layers of the LRAM, like vegetation outages, ignition history layer, and the downstream customer counts for more targeted de-energization strategy. Ideally this strategy would allow the company to create a PSPS strategy that maximizes the reduction of risk while also minimizing the number of disconnected customers.

- (c) By the conclusion of the 2020-2022 WMP cycle, the company plans to perform a re-analysis of our PSPS metrics. The company plans to incorporate historical gridded weather reanalysis data with outage records to get a stronger understanding of the wind-outage relationship. PacifiCorp’s goal is to get a probability of having an outage and the number of expected outages given a forecasted windstorm in a given area. Having a stronger understanding of when and where outages are likely to happen will allow the company to make more informed decisions about the necessity of a PSPS. PacifiCorp also plans to incorporate the fire consequence maps from Pyregence into the PSPS decision-making process. As a result, the company expects its PSPS circuit modeling efforts to be greatly improved by 2022, where we will have a stronger understanding of the probability of an outage (which can lead to an ignition) and the consequence of an ignition throughout the company’s service territory.

### **CalPA Data Request 1.10**

For each program identified in WMP section 5.3, Plan Program Targets:

- (a) Provide the annual program targets from the year 2019 onward as identified in the 2019 WMP filing.
- (b) Provide the annual program targets from the year 2020 onward as identified in the 2020 WMP filing.
- (c) List the actual work completed for 2019.
- (d) List the actual work completed for 2020.

### **Response to CalPA Data Request 1.10**

PacifiCorp included key program targets in in Section 5.3 of its 2021 Wildfire Mitigation Plan (WMP) Update filed on March 5, 2021. These program targets built upon the targets included in the company's 2020 WMP as well as progress achieved during 2020. Please note that PacifiCorp performed an initiative mapping process during 2020 to ensure the company's 2020 WMP aligned with the new 2021 WMP update template. As a result, a few program elements and definitions have evolved. Additionally, much of PacifiCorp's early effort centered around scope definition and planning. Therefore, annual and specific program targets were not available in the early stages of the company's WMP. Regardless, PacifiCorp has combined the company's 2020 and 2021 WMP filings to provide the information requested.

See Attachment CalPA 1.10.

### **CalPA Data Request 1.11**

For each mitigation initiative identified in WMP section 7.3.1, Financial data on mitigation initiatives:

- (a) Provide the spending forecasts from the year 2019 onward as identified in the 2019 WMP filing.
- (b) Provide the spending forecasts from the year 2020 onward as identified in the 2020 WMP filing.
- (c) Provide the actual spending for 2019.
- (d) Provide the actual spending for 2020.

### **Response to CalPA Data Request 1.11**

PacifiCorp included initiative spend in Section 5.3 of its 2021 Wildfire Mitigation Plan (WMP). This initiative structure and spend built upon the amounts identified in the company's 2020 WMP as well as progress achieved during 2020. Please note that PacifiCorp performed an initiative mapping process during 2020 to ensure the company's 2020 WMP aligned with the new 2021 WMP update template. As a result, a few program elements and definitions have evolved and planned versus actual spend may not always match up. Additionally, much of PacifiCorp's early effort centered around scope definition and planning. Therefore, annual and specific planned spend were not available in the early stages of the company's WMP. Regardless, PacifiCorp has combined the company's 2020 and 2021 WMP filings to provide the information requested in the form of an augmented Table 12 from the company's 2021 WMP filing.

See Attachment CalPA1.11. Columns F and G were added to provide 2019 actual and 2020 planned spend in addition to the 2020-2022 values provided in the 2021 WMP.

## CalPA Data Request 1.12

Please identify and provide a copy of all quality assurance or quality control (QA/QC) reports — conducted by both internal and external entities — that were completed since January 1, 2020 and that examined any programs, initiatives, or strategies described in your 2020 Wildfire Mitigation Plan. External entities include, but are not limited to, contractors, auditors, and Independent Evaluators.

## Response to CalPA Data Request 1.12

Please refer to Attachment CalPA 1.12-1 for the following:

- 7.3.4.14 Audit Report - Physical audits of inspection data, as described in 7.3.4.14 of PacifiCorp's 2021 Wildfire Mitigation Plan (WMP) Update filed March 5, 2021, consist of physical audits performed by internal resources (COMPANY PPL) and external resources (COMPANY OSMOSE) on inspections completed. The attached report, "QAQC Inspection Program Report," includes all field audit results (internal and external) as well as the desktop audit results.
- 7.3.5.13 of the WMP also presents discussion of audits conducted by internal resources and, where needed, based on schedule and workload constraints, external resources. The attached report, "PpAuditException\_Report" includes field audit results on vegetation work completed.

Also, The Wildfire Safety Division (WSD) Compliance Branch audited the Company's 2020 work and summarized its findings. See Attachments CalPA 1.12-2 and CalPA 1.12-3. Also see file, "WSD Monthly Performance Report December 2020," provided as Attachment CalPA 1.12-4, which can also be viewed at the following URL.

[https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About\\_Us/Organization/Divisions/WSD/WSD%20Monthly%20Performance%20Report%20December%202020.pdf](https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/WSD/WSD%20Monthly%20Performance%20Report%20December%202020.pdf)



### **CalPA Data Request 1.13**

Provide an Excel table of all defects in the year 2020 found by the Wildfire Safety Division's Compliance Branch (as rows) that includes the following information in separate columns:

- (a) Associated Circuit Name.
- (b) Defect Type.
- (c) Description of defect.
- (d) WMP initiative associated with defect.
- (e) Date that defect was identified.
- (f) Date that defect was corrected.
- (g) Priority level of corresponding corrective tag.
- (h) Location of defect (latitude/longitude).

### **Response to CalPA Data Request 1.13**

There were no defects found by the Wildfire Safety Division in 2020. (See response to CalPA Data Request 1.12.)