**CalPA Data Request 2.1**

On p. 145 of PacifiCorp's 2020 WMP, PacifiCorp describes its distribution and transmission pole replacement and reinforcement program, stating that the program incorporates both a "new engineering fiberglass specification for new construction" and "accelerated proactive replacement of existing wooden structures within the HTFD with non-wooden solutions."

a) PacifiCorp provides a table regarding the pole replacement program, showing the number of distribution and transmission poles covered by the program, by year. Please indicate how many transmission and distribution poles will be replaced each year, and how many are new construction vs. accelerated proactive replacement of existing wooden structures within the HTFD with non-wooden solutions.

b) How many wooden transmission and distribution poles does PacifiCorp currently have in each HFTD?

c) Does PacifiCorp plan to proactively replace[1] every transmission and distribution pole in the HFTD which does not meet the engineering specification for new construction? If so, over what timeframe?

**Response to CalPA Data Request 2.1**

a. The following table includes the breakdown of transmission and distribution planned wooden pole replacements from 2020-2023. This scope reflects accelerated replacement of existing structures that would not otherwise be identified through existing inspection and correction programs.

   As included in the company's 2020 WMP, PacifiCorp's pole replacement program first prioritizes pole replacements coincident to other planned programs or projects such as installation of covered conductor or replacement of copper (Cu) conductor. Therefore, the first few years have a smaller scope in order to properly align with other WMP programs and level load resources across the multi-year WMP. Similarly, years 2022 and 2023 reflect a significant ramp up in proactive pole replacements as other programs ramp down.

| WMP Year | Distribution Planned Replacements | Transmission Planned Replacements | Total Planned Replacements |
|---|---|---|---|
| 2020 | 39 | 0 | 39 |
| 2021 | 300 | 150 | 450 |
| 2022 | 300 | 180 | 480 |
| 2023 | 961 | 2,070 | 3,031 |
| TOTAL | 1,600 | 2,400 | 4,000 |

[1] By "proactively replace," we mean replace a pole before the end of its expected useful life, before the pole fails or shows signs of imminent failure, and before an inspection identifies a specific safety or reliability problem.

b. See table below.

| Voltage Class | Number of Wooden Poles in Zone 1 | Number of Wooden Poles in Tier 2 | Number of Wooden Poles in Tier 3 | Total Number of Wooden Poles within the HFTD |
|---|---|---|---|---|
| Distribution | 99 | 19,091 | 972 | 20,162 |
| Transmission | 18 | 4,940 | 485 | 5,443 |
| Total | 117 | 24,031 | 1,457 | 25,605 |

c. Currently, this 5-year replacement and reinforcement program includes the accelerated replacement of 4,000 poles. The specific scope of this program has yet to be fully completed for each year of the program. However, PacifiCorp's planned method of prioritization includes wildfire tier designation, outstanding conditions, age, age diversity, pole loading calculation and modeling, presence of joint use attachments and presence of distribution underbuild.

Not all poles within PacifiCorp's CA service territory within the HFTD will meet this screening criteria for accelerated replacement and, therefore, not all poles within the HFTD will be proactively replaced. However, all poles in PacifiCorp's CA service territory are included in the company's pole test and treat programs therefore all of PacifiCorp's CA poles, including both transmission and distribution poles, will be replaced at end of life.

The replacement of approximately 4,000 poles over five years reflects approximately 16 percent of all poles within the HFTD.

**CalPA Data Request 2.2**

On p. 145 of PacifiCorp's 2020 WMP, PacifiCorp describes its program to install system automation equipment. PacifiCorp states that the program includes "upgrade and installation of distribution protection and control schemes and equipment, such as relays, circuit breakers, reclosers, and communications equipment." PacifiCorp indicates that it completed 10 system automation projects in 2019, and will complete 31 projects in 2020, 24 in 2021, and 3 in 2022.

a) For each of the 10 projects completed in 2019, indicate the type of equipment installed, and whether the equipment is newly installed or a replacement.

b) For each of the 58 projects planned for 2020-2022, indicate the type of equipment to be installed, and whether the equipment will be newly installed or a replacement.

**Response to CalPA Data Request 2.2**

a) The 10 projects included replacement of electromechanical to electronic equipment for:
    a. 1 transmission substation relay
    b. 1 distribution circuit relay
    c. 8 distribution line reclosers
b) The 58 projects planned for 2020-22 also includes replacement of electromechanical to electronic equipment for:
    a. 11 transmission substation relays
    b. 30 distribution circuit relays
    c. 17 distribution line reclosers

Upon completion of these projects each of these devices will have supervisory control and data acquisition (SCADA) communications, remote operation (from dispatch operations) and the ability to have "policy files" resident on the devices to effect a variety of risk-tailored settings, including both elevated fire and high impedance fault detection.

**CalPA Data Request 2.3**

Table 1 on p. 20 of PacifiCorp's 2020 WMP describes recent performance on progress metrics for the last five years. PacifiCorp shows that grid modularization (defined as number of sectionalizing and automated grid control devices per circuit mile) is on average 33% lower in HFTD regions than in the rest of the grid within PacifiCorp's service area (11.35 in HFTD, 17.08 outside HFTD).

As PacifiCorp later describes, "Approximately 20% of PacifiCorp's California customers are located or are electrically-connected to the designated Tier 3 area within its service territory. Thus, it is challenging to mitigate the impacts of PSPS, until sufficient hardening efforts have been delivered to minimize the ignition risk during environmentally favorable periods described in Section 5.3.3" **[p. 77]**.

For the following PacifiCorp programs, please provide the percentage of miles targeted that exist within a HFTD:

a. Covered Conductor Installation (Section 5.3.3.3)
b. Distribution Pole Replacement and Reinforcement (Section 5.3.3.6)
c. Grid Topology Improvements (Section 5.3.3.8)
d. Installation of System Automation Equipment (Section 5.3.3.9)
e. Other – Replace small size Cu Conductor (Section 5.3.3.18)

**Response to CalPA Data Request 2.3**

As with all of the company's 2020 Wildfire Mitigation Plan (WMP) programs, PacifiCorp's grid-hardening programs are specifically focused on mitigation risk in the highest risk areas as determined through the fire threat mapping, more specifically Tier 3, Tier 2, and Zone 1.

The following summarizes PacifiCorp's overhead distribution and transmission line miles in Zone 1, Tier 2, and Tier 3 as depicted in Table 13 on Page 56 of the company 2020 WMP.

| Characteristic | Tier 3 | Tier 2 | Zone 1 | Total HFTD |
|---|---|---|---|---|
| OH Distribution Line Miles | 38.5 | 781.1 | 5.3 | 824.9 |
| OH Transmission Line Miles | 23.3 | 320.9 | 1.2 | 345.4 |
| TOTAL[1] | 61.8 | 1,102 | 6.5 | 1,170.3 |

[1] It is critical to note that, based on the way data was prepared to meet the GIS data requested in Section 2.4 and subsequently populate Table 13 of the WMP, certain facilities or components may be included in multiple categories. For example, a single linear circuit mile of transmission with distribution underbuild is represented as both a circuit mile of transmission as well as a circuit mile of transmission

To answer questions (a) through (e) below, the percentage being calculated is the percentage of the total applicable circuit miles as compared to the total circuit miles within the high fire threat district (HFTD) or Tier 3 for that particular program.

It is also critical to note when reviewing this information that—as included in Section 4.4.1 of the company's 2020 WMP—PacifiCorp, consistent with other California investor owned utilities, generally constrains public safety power shut-off (PSPS) events to Tier 3 areas and has established its plans consistent with regulatory requirements pursuant to Decision D. 12-04-024 (applicable to PacifiCorp pursuant to Resolution ESRB-8) and as adopted in the current PSPS Rulemakng, R.18-12-005. Therefore, the line-miles potential in scope for a PSPS activation does not directly translate to the line-miles within the HFTD.

a. Covered Conductor Installation (Section 5.3.3.3)

PacifiCorp's grid design and system hardening wildfire mitigation program focused on covered conductor installation includes replacement of existing single phase, two phase, and three phase overhead distribution and transmission conductor within the HFTD with insulated conductor solutions such as insulated cable, spacer cable, and crossarm insulation. The program is phased across five years, with the first year focused on engineering and program start up.

The currently identified scope of PacifiCorp's five-year covered conductor installation program is focused on PSPS candidate zones, overhead distribution circuits within Tier 3, or those electrically connected to Tier 3 which may reside in Tier 2 or Zone 1.

| 2020 WMP Total Program Scope | % of HFTD line-miles included in Scope | % of Tier 3 line miles included in Scope |
|---|---|---|
| 221 | 19% | 358% |

b. Distribution Pole Replacement and Reinforcement (Section 5.3.3.6)

PacifiCorp's distribution and transmission pole replacement and reinforcement program is focused on the accelerated proactive replacement of existing wooden structures within the HFTD with non-wooden solutions outside of existing inspection and replacement programs.

Currently, this five-year program includes the accelerated replacement of 4,000 poles. The specific scope of this program has yet to be fully completed for each year of the program. However, PacifiCorp's planned method of prioritization includes wildfire tier designation, outstanding conditions, age, age diversity, pole loading calculation and modeling, presence of joint use attachments and presence of distribution underbuild.

As the replacement of 4,000 poles reflects PacifiCorp's current estimate of pole replacements required to address the high risk wooden poles within Tier 2 and Tier 3

location. While this program is not really measured on a line-miles basis, the equivalent line-miles of Tier 2 and 3 have been included below to measure the percentage of line-miles targeted with this program. It is critical to note that addressing line-miles with this program does not mean that all poles are replaced within that line-mile.

| 2020 WMP Total Program Scope | % of HFTD line-miles included in Scope | % of Tier 3 line miles included in Scope |
|---|---|---|
| 1,164 equivalent line-miles | 100% | 1883% |

c. Grid Topology Improvements (Section 5.3.3.8)

PacifiCorp's grid topology improvements to mitigate or reduce PSPS events will focus on the evaluation of various scenarios within the company's pre-defined PSPS zones to understand what projects may be able to promote this flexibility and inform decision making. As 2019 represents the first year of PacifiCorp's PSPS program, the company does not yet have a defined list of mitigation projects. PacifiCorp anticipates that as this program evolves, these projects may include proactive installation of equipment but also recognizes that as weather patterns and risk can change quickly, specific proactive projects may not always be effective. Alternatively, the company may also look at enhance procedures and readiness to implement reactive switching or isolation points during an event.

At this time, no specific scope or budget has been set aside for this program. However, as this program is designed to mitigate the activation of potential future PSPS events, the equivalent line miles being address with this program are equivalent to Tier 3 locations.

| 2020 WMP Total Program Scope | % of HFTD line-miles included in Scope | % of Tier 3 line miles included in Scope |
|---|---|---|
| 61.8 equivalent line-miles | 5% | 100% |

d. Installation of System Automation Equipment (Section 5.3.3.9)

PacifiCorp's installation of system hardening wildfire mitigation program includes the deployment of distribution and transmission protection and control schemes and equipment, such as relays, circuit breakers, reclosers, and communications equipment, to enhance fault detection capabilities, reduce fault isolation time, improve fault location and record availability, and expedite restoration efforts. Currently, the scope of this program includes 68 projects throughout the HFTD over four years, with completion of the program in 2022. While these projects are location specific, they are designed to address circuits within the HFTD, specifically targeting Tier 3, Tier 2, or electrically connected. Therefore, the equivalent line-miles addressed with this program are the Tier 2 and Tier 3 locations.

| 2020 WMP Total Program Scope | % of HFTD line-miles included in Scope | % of Tier 3 line miles included in Scope |
|---|---|---|
| 1,164 equivalent line-miles | 99% | 1883% |

e. Other – Replace small size Copper Conductor (Section 5.3.3.18)

Small diameter copper (Cu) and iron conductors do not coordinate with upstream fusing and relay settings required for advanced fault detection programs. Under certain fault conditions the small diameter conductor with fail before the protection scheme will operate. Replacing the conductor with a larger size will ensure proper protective coordination. Therefore, the scope of this program includes the replacement of small diameter copper and iron conductors throughout PacifiCorp's California service territory with aluminum stranded conductor.

While this program is critical to the company's overall ability to implement advanced protection and control schemes (Section 5.3.3.9), which is specifically targeted at HFTD locations, the Cu conductor identified for replacement may not specifically be located within the HFTD.

| 2020 WMP Total Program Scope | % of HFTD line-miles included in Scope | % of Tier 3 line miles included in Scope |
|---|---|---|
| 53 line-miles | 2% | 0% |

**CalPA Data Request 2.4**

For several of its "implemented" programs, PacifiCorp stated that "2019 efforts significantly focused on engineering and scoping efforts" **[p. 139].** With the first year of these programs finished, Table 4 **[p. 30]** shows PacifiCorp's system hardening progress for their planned 4 or 5-year projects:

• *Covered Conductor Installation*, a 5-year project, is 10% complete. Discussed later in Section 5.3.3.3 **[p. 139]**, shows an initial program startup with a ramp-up in installation by years two and three.
• *Other – Replace small size Cu Conductor*, a 5-year project, is 3% complete. Discussed later in Section 5.3.3.18 **[p. 164]**, shows an initial program startup with a ramp-up in installation by years three and four.
• *Installation of System Automation Equipment*, a 4-year project, is 15% complete. Discussed later in Section 5.3.3.9 **[p. 153]**, shows an initial program startup with a ramp-up in installation by years two and three.
• *Distribution Pole Replacement and Reinforcement*, a 5-year project, is 10% complete. Discussed later in Section 5.3.3.6 **[p. 145]**, shows an initial program startup with only 29% of poles installed in the first four years of the project. PacifiCorp notes that they will install the remaining 71% of the poles in the final year of the program which will occur in 2023.

a. For the "Implemented" programs above, does PacifiCorp believe that there will be a need for staffing increases or other increases in available resources to meet these targeted goals?

b. As more programs move from "Planned" to "Implemented", such as Grid Topology Improvements (Section 5.3.3.8), does PacifiCorp anticipate the need for staffing increases to meet these targeted goals?

c. Does PacifiCorp anticipate any resource constraints such as lack of trained personnel or specialized equipment that could result in programs not meeting their five year goals?

d. In future WMP submissions, how does PacifiCorp intend to reassess program goals or resource allocation in light of actual progress to ensure that goals are on track?

**Response to CalPA Data Request 2.4**

a. Where expertise, processes, and resources exist, PacifiCorp is making every effort to integrate new Wildfire Mitigation Plan (WMP) programs into existing teams/departments to manage with existing internal resources. To date, PacifiCorp has not run into any specific road blocks or constraints in doing so. However, as programs ramp up, it is assumed that internal resources will become constrained or internal expertise will not be sufficient to execute new or specialized programs. This

is particularly relevant as new or advanced technology is considered and piloted or during years where the volume of activity ramps up significantly. It is expected that as these needs are identified, PacifiCorp will evaluate the use of contracted or new resources at that time with a goal of progressing each program as planned. However, as PacifiCorp is early in the implementation of its multi-year WMP, it is challenging to know the timing and magnitude of that requirement. This is particularly applicable for programs that move from "Planned" to "Implemented."

b. See Response to subpart (a).

c. Yes. However, the specifics are not yet defined. See response to response to subpart (a).

d. Periodic checks against of actual performance compare to planned goals are critical to ensure the successful implementation of any program. Specific to PacifiCorp's 2020 WMP implementation and the programs referenced in CalPA DR 4, periodic reviews of progress versus plan for each program are incredibly informative and help PacifiCorp identify the need to reassess program targets or add/reallocate resources to meet the company's overall multi-year WMP targets.

   As included in the company's 2020 WMP in Section 5.2 and 5.3, PacifiCorp recently formed a Wildfire Mitigation Delivery Project Management Office (PMO) within the transmission and distribution operations department and assigned a Wildfire Mitigation Delivery Director to lead the effort. The Wildfire Mitigation Delivery PMO will be responsible for planning, tracking, completion, and quality assurance of PacifiCorp's grid design and system hardening programs, which includes the specific programs referenced above in this request. This responsibility will inherently include assessing program completion versus targets, re-assessing program targets, and adding or reallocating of resources as needed to ensure program targets are met.

   At this time, PacifiCorp anticipates tracking these activities monthly and assessing annually for needed changes annually.

**CalPA Data Request 2.5**

Is PacifiCorp subject to regulatory requirements in other jurisdictions that are functionally similar to California's Wildfire Mitigation Plans? If yes, please provide a brief narrative description of plan requirements and progress for each rate jurisdiction.

**Response to CalPA Data Request 2.5**

PacifiCorp is not subject to regulatory requirements in other jurisdictions that are functionally similar to California's Wildfire Mitigation Plans.