PACIFIC POWER
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 2000
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November 1, 2021

VIA OEIS E-FILING

Office of Energy Infrastructure Safety
300 Capitol Mall, Suite 500
Sacramento, CA 95814
info@energysafety.ca.gov

RE: PacifiCorp (U 901 E) 2021 Wildfire Mitigation Plan Update – Change Order Report

Dear Director Jacobs:

PacifiCorp d/b/a Pacific Power (PacifiCorp or the Company) provides this 2021 Wildfire Mitigation Plan Change Order Report, in accordance with the Energy Safety Office's Resolution WSD-017 and October 6, 2021 guidance document, Office of Energy Infrastructure Safety Final Change Order Process.

If you have any questions regarding this request, please contact Pooja Kishore, Regulatory Affairs Manager at (503) 813-7314.

Sincerely,

Shelley McCoy
Director, Regulation

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PacifiCorp
2021 Wildfire Mitigation Plan Update
Change Order Report – November 1, 2021

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Executive Summary

PacifiCorp respectfully submits the attached Change Order Report for consideration, consistent with WSD-017 and the 2021 Change Order Process. This report outlines the company's proposed changes to the 2021 WMP Update identified as new information has become available.

On July 16, 2021, the California Public Utilities Commission ratified the Wildfire Safety Division's WSD-017 Action Statement and Resolution issued to PacifiCorp regarding the company's 2021 WMP Update. Resolution WSD-017, Attachment A includes details regarding the 2021 Change Order process, which was later modified and clarified in a October 6, 2021 letter from the Office of Energy Infrastructure Safety (Energy Safety).

As described in the letter, the high-level objectives of the Change Order process is to ensure the utility continues to follow the most effective and efficient approach to wildfire mitigation and to maximize Energy Safety's understanding of and ability to respond to significant changes to the approved WMPs. Therefore, the Change Order process provides a mechanism for a utility to make adjustments based on new information or experience gained while implementing various initiatives in the WMP.

As explained in the October 6, 2021 letter, a "significant" change is defined as follows:

- A change falls into the following initiative categories, i) risk assessment and mapping, ii) vegetation management and inspections, iv) grid design and system hardening, or v) asset management and inspections.

or

- A change to the utility's Public Safety Power Shut-off (PSPS) strategy, protocols and/or decision-making criteria.

and

- Meets one or more of the following criteria:
  - A change that would result in an increase or decrease of more than $10 million or constituting a greater than 20% change in an initiative's planned total expenditure.
  - A change that reduces or increases the estimated risk reduction value of an initiative by more than 25%.
  - A change that results in the modification of a WMP initiative target by greater than or equal to 5%. Targets are identified in Table 5.3-1 included in the 2021 WMP Guidance and through QIU submissions as described in Compliance Guidance (i.e., number of trees trimmed, miles of power lines hardened, or poles inspected). Energy Safety expects these two sources of information to be identical.
  - A change that results in a significant shift of either the strategic direction or purpose of an initiative (i.e., introducing use of a novel risk model that reverses the risk profile of the utility's circuits).

As a result of feedback received in WSD-017 and experience gained throughout 2021, PacifiCorp identified

8 proposed changes to the company's 2021 WMP Update, filed March 5, 2021. These proposed changes introduce 4 new programs to meet new regulatory requirements,[1] address areas for improvement identified in WSD-017, or reduce the PSPS impact to customers. PacifiCorp also proposes to augment four existing initiatives to accelerate the reduction of risk and provide greater transparency. One of these changes involves an initiative in the data governance category to include the addition of resources to support Geospatial Information Systems (GIS) data preparation. PacifiCorp recognizes that this section of the 2021 WMP Update is not explicitly included in the 2021 Change Order process. However, for the sake of transparency and because of the critical tie to other initiatives under Risk Assessment & Mapping, Situational Awareness, and Grid Hardening, and ultimately PSPS assessment and strategy, PacifiCorp has included a proposed increase in scale to the current Centralized Repository for Data initiative in this Change Order Report.

The following table summarized the changes proposed.

#	Category	Initiative Name	2021 WMP Update Section	Type of Change	Objective	Impact of Change to 2020-2022
A1	Risk Assessment and Mapping Changes	Advanced Weather Monitoring and Weather Stations	7.3.2.1	Increase in Scale	Improve situational awareness & PSPS decision making through additional data collection	$105k increase for 7 additional weather stations in 2022
A2	Risk Assessment and Mapping Changes	Fault indicators for detecting faults on electric lines and equipment	7.3.2.3	New / Increase in Scale	Improve effectiveness of fire season protection and control settings through reduction in restoration times (less impact to customers)	$750k to install communicating fault indicators on circuits subject to sensitive protection and control settings in the HFTD
B1	Grid Design and System Hardening	Installation of Covered Conductor	7.3.3.3	Change to timeline / Increase in cost	Shift 56 miles from 2021 into Q1/Q2 of 2022 and increase funding based on 2021 experience	$44.7 million increase to reflect more accurate forecasts and costs and shift 56 miles from 2021 to Q1/Q2 2022
B2	Grid Design and System Hardening	Distribution Pole Replacement and	7.3.3.6	Increase in Scale / Change to	Increase scale of pole replacements	$5.0 million reduction/shift to the covered

[1] Decision 21-06-034 Decision Adopting Phase 3 Guidelines, issued 6/29/2021, at A3.

#	Category	Initiative Name	2021 WMP Update Section	Type of Change	Objective	Impact of Change to 2020-2022
		Reinforcement, including with composite poles		timeline	coincident with covered conductor based on 2021 experience and better reflect needs	conductor initiative to replace an additional 2,288 wooden poles in 2021/2022
B3	Grid Design and System Hardening	Expulsion Fuse Replacements	7.3.3.7	New / Increase in Scale	Increase effectiveness and expedite delivery in response to WSD-017	$800k increase to accelerate, track and replace expulsion fuses and other similar pole hardware as a separate program
B4	Grid Design and System Hardening	Mitigation of Impact on Customers and Other Residents Affected During a PSPS Event – Part A (Generator Rebate)	7.3.3.11	New / Increase in Scale	Reduce the potential impact of PSPS events	$67k increase to facilitate new generator rebate program in the HFTD
B5	Grid Design and System Hardening	Mitigation of Impact on Customers and Other Residents Affected During a PSPS Event – Part B (Portable Battery)	7.3.3.11	New / Increase in Scale	Meet new PSPS Phase III Requirements and reduce the potential impact of PSPS events	$451k increase to offer portable batteries to medically dependent customers in Tier II/III
C1	Data Governance	Central repository for data	7.3.7.1	Increase in Scale	Enhance data reporting and quality and meet GIS Data Schema Quarterly Compliance and Assurance Protocols	$248k total increase to the initiative to add resources

The following Change Order report describes each proposed change in detail, consistent with the 2021 Change Order Process requirements. The report groups the changes by initiative category and follows the naming convention found in the 2021 WMP Update. This Change Order Report does not include change to initiatives that are still being evaluated and/or additional changes that could happen in the year 2022 and beyond.

A. Risk Assessment and Mapping Changes

1. Advanced Weather Monitoring and Weather Stations (Section 7.3.2.1)

a) Initiative Being Altered

2021 WMP Section: Section 7.3.2.1
Page Number: 123
Initiative Name: Advanced Weather Monitoring and Weather Stations

b) Planned Budget

The table below indicates the planned and actual spend for this proposed change.
Note: solid colored boxes indicate there is no data or existing value for that given year/initiative.

Type of Spend	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)		$190,000	$220,000	$580,218
New Planned		$190,000	$325,000	$685,218
Actual[2]	$170,218	$150,000k	TBD	$320,218

The table below reflects the changes to units and program targets associated with this change.

Type of Target	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)		20	14	46
New Planned		21	20	53
Actual[3]	12[4]	9	TBD	23

No spend is being redeployed. Additional spend is planned to complete new initiative.

c) Type of Change Being Proposed

The proposed change is an increase in scale, with additional weather stations planned for deployment in 2022.

[2] Actual spend in 2021 as of 10/28/2021.
[3] Actual units in 2021 as of 10/28/2021.
[4] Actuals in 2020 include actual operational fleet as of December 31, 2020 which includes installations in 2019 and 2020.

d) Detailed Description of the Proposed Change

As described on page 123 of the 2021 WMP Update, "A key component of fire risk mitigation revolves around knowing when, where, how and why to take abnormal action. With proper awareness, operational strategies can be employed that can reduce the probability that fault operations will result in utility ignitions; for instance, resetting reclosers to minimize test energizing after a fault is detected by the equipment. The first line of defense then, involves creating an understanding of the metrics that are key to recognizing the need to be on a higher level of awareness. Thus, mitigating the risk involves creating an understanding of when weather creates increased risk of wildfire."

Situational awareness remains a key component of PacifiCorp's wildfire mitigation strategy. Data collected by weather stations is used not only in the company's long term risk assessment tool, LRAM,[5] but also remains a key input to any PSPS decision making protocols and informs implementation of certain operational protocols. In 2021, the newly added meteorology department has further leveraged weather station data and overall climatological data to evaluate, on a daily basis, the wildfire risk present in the company's service territory on a circuit-by-circuit basis. As a result, PacifiCorp has identified the need for additional weather data.

PacifiCorp is proposing an increase to the number of weather stations included in this initiative. These additional weather stations will provide additional data critical to furthering the company's risk modeling capability as well as PSPS decision making protocols.

e) Justification for the Proposed Change

This proposed change facilitates an improved, more complete initiative by allowing for the collection of more granular data. Expansion of the company's weather station network will also improve the effectiveness of this initiative.

f) Change in Expected Outcomes

What outcomes, including quantitative ignition probability and PSPS risk reduction, was the changed initiative expected to achieve in the 2021 WMP Update?

Weather stations themselves do not reduce ignition probability or reduce the risk of PSPS. The installation of weather stations informs general and localized risk, informs both the deployment of longer-term grid hardening initiatives and real time operational protocols, thereby, reducing the probability of ignition through these other initiatives.

What outcomes, including quantitative ignition probability and PSPS risk reduction, will the initiative deliver with the proposed adjustment?

The proposed adjustment will support incremental reduction of ignition probability and PSPS by further enabling other mitigation initiatives.

[5] See Section 4.2 of the 2021 WMP Update.

2. Fault Indicators for Detecting Faults on Electric Lines and Equipment (Section 7.3.2.3)

a) Initiative Being Altered

2021 WMP Section: Section 7.3.2.3
Page Number: 127
Initiative Name: Fault indicators for detecting faults on electric lines and equipment

b) Planned Budget

The table below indicates the planned and actual spend for this proposed change.

Type of Spend	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)	[redacted]	[redacted]	[redacted]	[redacted]
New Planned	[redacted]	$750,000	$0	$750,000
Actual[6]	[redacted]	$276,000	TBD	$276,000

No spend is being redeployed. Additional spend is planned to complete new initiative.

c) Type of Change Being Proposed

The type of changed proposed is an increase in scale and change to type of work being done. PacifiCorp is proposing the installation of additional devices beyond standard installs and is leveraging a new, improved technology to do so.

d) Detailed Description of the Proposed Change

As described in the 2021 WMP Update on page 127, "Fault indicators are part of PacifiCorp's standard equipment and either installing new ones or augmenting additional locations is generally being incorporated into Grid Design and System Hardening, particularly as it relates to installation of relays having advanced detection and diagnosis capabilities." Additionally, fault indicators play a key role in pinpointing the location of faults to reduce patrol times and expedite restoration.

Based on heightened risk during fire season, PacifiCorp deploys alternate settings that incorporate more sensitive fault detection and isolation capabilities through techniques such as the disabling of reclosing. This operational tactic is an incredibly important component of PacifiCorp's overall wildfire mitigation strategy. However, this protocol can result in more frequent outages on a given circuit. When paired with other operations protocols during fire season, such as the requirement to patrol entire lines prior to re-energization, circuits can then experience more frequent and longer outages, especially where traditional equipment and technology cannot pin-point fault locations.

[6] Actual spend in 2021 as of 10/28/2021.

While necessary to reduce the risk of wildfire, PacifiCorp recognizes the disruption this can have to customers and communities. Therefore, in 2021, PacifiCorp proposes the introduction of a new initiative to install Communicating Fault Current Indicators (CFCI) prior to the 2022 fire season on circuits where more sensitive settings may be deployed during periods of heightened risk. These CFCI devices sense faults and communicate these results back to PacifiCorp's central grid operations center. When placed strategically along circuits, the results can be used to pin-point fault locations and target operations response and patrols, reducing restoration times and mitigating the impact to customers. Because of their impact in reducing the amount of time required to patrol lines when a device with reclosing functionality opens, CFCI devices provide a significant benefit in facilitating the use of more sensitive fire settings to reduce wildfire risk.

e) Justification for the Proposed Change

The proposed change includes more discrete tracking and transparency. It also includes implementation of new and better technology to identify fault locations. This proposed change also significantly improves the effectiveness of other wildfire mitigation initiatives, namely the implementation of more sensitive protection and control settings during heightened risk. Additionally, this proposed change improves the efficiency of other initiatives by expediting patrols and restoration activities post outage, which reduces the impact to customers and communities without compromising the reduction in wildfire risk.

f) Change in Expected Outcomes

What outcomes, including quantitative ignition probability and PSPS risk reduction, was the changed initiative expected to achieve in the 2021 WMP Update?

The initiative was not included in the 2021 WMP Update. Therefore, there was not planned ignition probability or PSPS risk reduction in the 2021 WMP Update.

What outcomes, including quantitative ignition probability and PSPS risk reduction, will the initiative deliver with the proposed adjustment?

This proposed change does not impact the ignition or PSPS event probability. However, this new initiative does significantly reduce the impact to customers and communities of wildfire risk when used in combination with other wildfire mitigation techniques as described above. Regarding PSPS events, this new initiative can reduce patrol times, especially if challenges are encountered during restoration, resulting in an overall reduction of PSPS event duration. Additionally, as PacifiCorp's situational awareness and PSPS decision making processes mature in conjunction with the implementation of grid hardening initiatives such as covered conductor, other techniques, such as the operational protocol and use of sensitive settings, can become real alternatives to PSPS events, assuming the same pinpointed approach can be taken. Installation of CFCI devices support that capability.

B. Grid Design and System Hardening Initiative Changes

1. Installation of Covered Conductor (Section 7.3.3.3)

a) Initiative Being Altered

2021 WMP Section: Section 7.3.3.3
Page Number: 130
Initiative Name: Installation of Covered Conductor

b) Planned Budget

The table below indicates the planned and actual spend for this proposed change.

Type of Spend	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)	[redacted]	$15,014,206	$11,580,000	$30,918,403
New Planned		$22M	$53.6M	$75.6M
Actual	$4,324,197	$10,509,309	TBD	$14,634,242

The table below reflects the changes to units and program targets associated with this change.

Type of Target	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)	[redacted]	81	50	132
New Planned		25	106	132
Actual	1	8	TBD	7

c) Type of Change Being Proposed

PacifiCorp is proposing a change to funding level due to unanticipated increase in costs and a delay in deployment timing due to unanticipated delivery challenges. See Section (d) below for more information.

d) Detailed Description of the Proposed Change

As described in the 2021 WMP Update, "overhead distribution conductor can be susceptible to incidental contact with foreign objects or phase to phase contact which, under certain conditions, can result in a fault scenario. During fire season, these fault scenarios pose wildfire risk, because arcing associated with the fault could ignite a fire. During extreme weather scenarios this becomes particularly critical when considering when and where to implement a PSPS event. Therefore, PacifiCorp's covered conductor

installation program seeks to retrofit existing distribution and local transmission lines in the highest risk locations and PSPS zones with more resilient technology such as covered conductor and spacer cable."

PacifiCorp initiated implementation of covered conductor in 2019 and delivered the first project in 2020. Due to limited experience at the time, the company developed cost estimates based on experience with previously completed large wire reconductor projects (not specifically covered conductor) in the 2021 WMP Update. PacifiCorp has established target costs of $190K for single phase line miles, $220K for two phase line miles, and $250K for three phase line miles. The breakdown of these unit costs by component is included below.

Initial Cost Estimates From 2021 WMP Update				
Design, estimating, and permitting	Materials	Construction Labor	Project Management	Targeted Cost per Line Mile
$30,000	$80,000	$35,000	$10,000	$200k

However, since filing of the 2021 WMP, PacifiCorp's has experienced significantly higher costs than anticipated to install covered conductor, specifically in the areas of materials, construction labor, and permitting.

As a result of detailed engineering design, approximately 20 poles are being identified and replaced every mile to ensure adequacy of pole strength to accommodate the additional weight of covered conductor. Each pole is impacting the overall cost by approximately $8k, or $160k per mile. Actual construction labor costs, originally assumed to be approximately $70k per mile, are currently $270k per mile based on available contractors in the region to perform work, presumably due to competitive labor market and demand in California. Approximately $50k of this unanticipated cost for constriction labor is incurred because contract crews are working longer shifts and more days per week to expedite delivery of the projects. And finally, PacifiCorp is experiencing, on average, an additional $40k per mile to facilitate additional permits and surveys originally not anticipated for these projects.

Based on 2021 work, PacifiCorp now proposes changing the initiative to reflect better estimates gained through experience and intends to begin forecasting the installation of covered conductor at $600k per mile. See table below for changes relative to the 2021 Update.

Revised Cost Estimates in Proposed Change				
Design, estimating, and permitting	Materials	Construction Labor	Project Management	Targeted Cost per Line Mile
$70k (133% increase)	$240k (200% increase)	$270k (286% increase)	$20k (no change)	$600k

In additional to changing the unit cost and overall forecasted spend, PacifiCorp is also proposing to change the 2021 program target. PacifiCorp continues to face challenges with delivering the implementation of covered conductor. Significant changes were made in 2021 to increase delivery. PacifiCorp added dedicated project managers and worked with design contractors to staff up from 5 to approximately 14 full time employees and eliminate previous bottlenecks in the delivery process.

The company is now on track to deliver approximately 25 miles of covered conductor by the end of the year, a significant improvement over 2020. An additional 51 miles are also currently under construction but not forecasted for completion until early 2022. While this represents a significant increase from previous years, this number is less than the originally planned scope of 81 miles in 2021. For similar reasons to the increase in cost as explained above, the covered conductor projects have experienced delays. For example, unlike typical distribution construction projects or corrective maintenance, covered conductor projects require significantly more environmental and cultural surveys and other new permit requirements. PacifiCorp is committed to working safely and following protocols but significantly underestimated the impacts of complex permitting and surveys on project delivery timelines.

As a result, PacifiCorp is proposing a change to the 2021 target, which reflects a delay in delivery from 2021 to Q2 2022, approximately 6 months. The company is still committed to delivering the full 2020-2022 scope of 132 miles but needs to move delivery of approximately 56 miles from 2021 to the first two quarters of 2022.

e) Justification for the Proposed Change

The proposed change reflects actual costs and more accurate forecasted values based on the actual costs experienced to date. While the total number of miles planned for completion has not changed, the proposed change also reflects more attainable targets for completion in 2021. As discussed in subsection d above, delivery delays have made completion of the targeted 51 miles infeasible.

Despite the increase in costs and delivery setbacks, PacifiCorp remains committed to delivering the full program scope as included in the 2021 WMP Update of 132 miles. However, because of the cost increase, the company will exceed the planned costs for the 2020-2022 WMP term by more than 20% or 10 million.

PacifiCorp is not changing the total scope or program target. Therefore, the change order has a neutral impact on the program's effectiveness and completeness. However, the proposed change does allow for the full program scope to be completed. Therefore, it avoids a negative impact to the completeness and effectiveness of the initiative.

f) Change in Expected Outcomes

What outcomes, including quantitative ignition probability and PSPS risk reduction, was the changed initiative expected to achieve in the 2021 WMP Update?

PacifiCorp is not changing the total scope or program target but delaying a portion of the work from 2021 until the first half of 2022. This will have a short-term impact of the potential risk reduction in early 2022 until the remaining 56 miles from the 2021 plan can be completed.

With this proposed change, PacifiCorp is planning to complete the full 2021 planned scope of 81 miles prior to the 2022 fire season, ahead of the time-period when wildfire and PSPS risk significantly increase. Therefore, the overall impact to ignition probability and PSPS risk reduction will be low as the delay is occurring during the lowest risk time of the year. Nonetheless, PacifiCorp recognizes that meeting targets is important to the overall strategy of reducing wildfire risk and is committed to completing the full 132 miles by the end of 2022 as originally planned.

What outcomes, including quantitative ignition probability and PSPS risk reduction, will the initiative deliver with the proposed adjustment?

PacifiCorp is not changing the total scope or program target beyond the short-term six-month delay mentioned above. Therefore, the proposed change should have a neutral impact on the overall ignition probability and PSPS risk reduction for the full WMP term.

2. Distribution Pole Replacement and Reinforcement, including with composite poles (Section 7.3.3.6)

a) Initiative Being Altered

2021 WMP Section: Section 7.3.3.6
Page Number: 131
Initiative Name: Distribution Pole Replacement and Reinforcement, including with composite poles

b) Planned Budget

The table below indicates the planned and actual spend for this proposed change. The proposed change includes alignment with the covered conductor program to make best use of resources. Therefore, costs will be accounted for in Initiative 7.3.3.3. See Change Order section above for impact.

Type of Spend	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)	[redacted]	$1,897,513	$2,950,779	$5,092,733
New Planned		$0	$0	$0
Actual	$244,411	$0	TBD	$244,411

The table below reflects the changes to units and program targets associated with this change.

Type of Target	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)	[redacted]	128	272	429
New Planned		668	2,020	2,717
Actual	29	113	TBD	142

c) Type of Change Being Proposed

PacifiCorp is proposing an increase in scale of the initiative target based on new information and experienced gained in 2021. Additionally, this change could also be viewed as a change in deployment timing to bring the 2023+ distribution pole replacements forward in time, to coincide with the covered conductor program based on experienced gained in 2021.

d) Detailed Description of the Proposed Change

"As part of PacifiCorp's standard inspection and maintenance programs, poles may be identified for replacement or reinforcement within PacifiCorp's service territory, consistent with state specific requirements and prudent utility practice. When a pole is identified for replacement, typically through

routine inspections and testing, major weather events, or joint use accommodation projects, a new pole consistent with engineering specifications suitable for the intended use and design is installed in its place. Engineering specifications typically reflect the use of wooden poles which is consistent with prudent utility practice and considered safe with structural capacity to support overhead electrical facilities during standard operating conditions. However, alternate non-wooden construction such as fiberglass or fire wrapping can provide additional structural resilience during wildfire events and, therefore, aid in restoration efforts."[7] PacifiCorp included, as a component of the company's system hardening efforts, this proactive wooden pole replacement program in the 2019, 2020, and 2021 WMP filings.

While not specifically known at the time the 2019 WMP was filed, PacifiCorp's proposed plan included addressing approximately 4,000 poles to promote greater resilience to wildfire events.[8] At this time, no specific breakdown was proposed regarding distribution and transmission poles but was notionally thought to be 60/40 percent, respectively.

In 2019, PacifiCorp developed internal engineering standards and specifications to facilitate the installation of non-standard wildfire risk reducing materials, such as steel or fiberglass. Ultimately, fiberglass was selected as the preferred material over steel due to additional risk posed in lightning environments by steel, the strength reduction that can occur in high heat environments with steel, and moderate increase in costs with fiberglass as compared to steel.[9]

Beginning in 2020, PacifiCorp leveraged these new standards to replace wooden poles with fiberglass poles as a part of the covered conductor program where the engineering analysis indicated additional strength was required to accommodate the weight of covered conductor. While an upgraded wooden pole could be used, non-wooden poles provide additional resilience to the system by reducing the potential impact of wildfire events on utility infrastructure and supporting faster restoration should an event occur. Replacing wooden poles alongside the covered conductor program uses resources efficiently and ensures that the highest risk locations are prioritized for replacement with lower incremental cost than a standalone program.

PacifiCorp continued this practice in 2021. As a result, 113 poles have been replaced to date coincident with the covered conductor program. 555 more poles are forecasted for replacement by the end of 2021, for an annual planned total of 668.

After completing additional covered conductor projects in 2021, PacifiCorp now forecasts that the actual number of poles replaced coincident with covered conductor in 2021 will far exceed the planned targets from the 2021 WMP Update. PacifiCorp now estimates that approximately 20 poles will be replaced per mile of installed covered conductor. To accommodate this new information, increase transparency, and ensure pole replacements are prioritized effectively, PacifiCorp is proposing an increase to the initiative target for the 2020-2022 WMP term. As these poles will be completed alongside the installation of covered conductor, the costs will be included in the change order proposed for Section 7.3.3.3.

e) Justification for the Proposed Change

[7] See PacifiCorp's 2021 WMP Update at page 132.
[8] See PacifiCorp's 2019 WMP at page 42.
[9] See PacifiCorp's 2020 WMP at page 89.

Aligning pole replacements with the covered conductor projects reflects an effective use of resources to accomplish more quickly. Additionally, where poles need to be replaced to accommodate the additional weight of covered conductor, replacing wooden poles with fiberglass will increase resiliency and eliminate the need to return at a later date. This approach also ensures that pole replacements are prioritized effectively.

Furthermore, this proposed change will provide the additional clarity and transparency sought in the WSD-017 Action Statement. This change will also be used to inform the 2022 WMP Update to ensure program targets are better defined, achievable and justified. PacifiCorp intends to refine and alter future program targets to ensure replacements more clearly reduce risk.

f) Change in Expected Outcomes

What outcomes, including quantitative ignition probability and PSPS risk reduction, was the changed initiative expected to achieve in the 2021 WMP Update?

The proactive replacement of wooden poles with non-wooden solutions within the HFTD improves overall structural resilience, reduces wildfire risk, and supports faster restoration efforts should a wildfire event happen. When poles require replacement to accommodate the additional weight of covered conductor, both wooden and non-wooden solutions will meet engineering specifications. However, non-wooden solutions, such as fiberglass, provide incrementation wildfire risk reduction to protect the utility infrastructure from a wildfire event. This can become particularly helpful during restoration after a major event, as power can be a key facilitator of response efforts.

The proposed change will increase the number of wooden poles replaced with fiberglass in 2021 and 2022 coincident to covered conductor project targeted at PSPS locations, thereby incrementally reducing the potential impact of wildfire events and reducing PSPS risk.

What outcomes, including quantitative ignition probability and PSPS risk reduction, will the initiative deliver with the proposed adjustment?

Similar to above, the proposed change will increase the number of wooden poles replaced with fiberglass in 2021 and 2022 coincident to covered conductor project targeted at PSPS locations, thereby incrementally reducing the potential impact of wildfire events and reducing PSPS risk for the full WMP term.

3. Expulsion Fuse Replacement (Section 7.3.3.7)

a) Initiative Being Altered

2021 WMP Section: Section 7.3.3.7
Page Number: 134
Initiative Name: Expulsion Fuse Replacements

b) Planned Budget

Type of Spend	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)	[redacted]	[redacted]	[redacted]	[redacted]
New Planned	[redacted]	$50K	$750K	$800K
Actual[10]	[redacted]	$0	TBD	$0

c) Type of Change Being Proposed

PacifiCorp is proposing (1) a change in prioritization, to bring the replacement of expulsions fuses up in time through separation from the covered conductor initiative and (2) an increase in scale to include more locations than just where expulsion fuses are co-located with covered conductor rebuild projects and (3) an increase in scope to include other line hardware that pose similar risk such as lightning arrestors.

d) Detailed Description of the Proposed Change

As included in the 2021 WMP Update, "Overhead expulsion fuses serve as one of the primary system protection devices on the overhead system. The expulsion fuse has a small metal element within the fuse body that is designed to melt when excessive current passes through the fuse body, interrupting the flow of electricity to the downstream distribution system. Under certain conditions, the melting action and interruption technique will expel an arc out of the bottom of the fuse tab. To reduce the potential for ignition as a result of fuse operation, PacifiCorp has identified alternate methodologies and equipment that do not expel an arc for installation within the HFTD."

In the 2021 WMP, PacifiCorp planned to replace expulsion fuses with non-expulsion fuses concurrently with other grid hardening programs, namely the covered conductor initiative. In basic terms, this approach was driven by efficiency considerations, to save on labor cost by completing all work at one time. However, this approach did not expedite expulsion fuse replacements.

WSD-017 Action Statement PC-6, issued on July 15, 2021, identified this approach as an area for improvement in PacifiCorp's WMP, particularly given evidence that other utilities were progressing and demonstrating value in separate, prioritized replacements of expulsion fuses. In response to the WSD-017

[10] Actual spend in 2021 as of 10/28/2021.

Action Statement, PacifiCorp is now proposing a separate program to track and replace expulsion fuses within high-risk areas separate from the covered conductor program. This will (a) expedite the replacement of expulsion fuses on lines where covered conductor installation is planned and (b) expand the expulsion fuse replacement program to circuits in the HFTD where installation of covered conductor is not currently planned. Additionally, PacifiCorp is proposing including the replacement of additional pole hardware, such as cutouts and lighting arrestors, into this program, as these devices pose similar risk and require similar resources to replace. Consistent with the new approach, PacifiCorp plans to replace all expulsion fuses and other like hardware located in its Tier 3 and Tier 2 areas as part of a multi-year effort.

e) Justification for the Proposed Change

This proposal change will improve the effectiveness of the initiative. As this proposed change increased the scope of fuse replacements and inclusion of other pole hardware, the mitigation tactic will be more widespread, incrementally reduce risk throughout Tier 2 and Tier 3 locations in addition to targeted PSPS zones. Additionally, this proposed change will expedite the replacements, reducing risk more quickly.

This proposed change will also facilitate additional transparency in reporting. In 2020 and 2021, PacifiCorp tracked expulsion fuse replacements at the circuit level as part of the covered conductor initiative, demonstrated during the Independent Evaluation conducted during May and June of 2021. However, in response to this proposed change and the WSD-017 action statement, PacifiCorp is establishing a different system for tracking expulsion fuse replacements independently and at a more granular level.

f) Change in Expected Outcomes

What outcomes, including quantitative ignition probability and PSPS risk reduction, was the changed initiative expected to achieve in the 2021 WMP Update?

With this proposed change, PacifiCorp will be able to expedite replacement of expulsion fuses and other similar line hardware to reduce risk more quickly. This change will reduce the probability of ignition more quickly and more broadly.

What outcomes, including quantitative ignition probability and PSPS risk reduction, will the initiative deliver with the proposed adjustment?

Similar to above, the proposed change will reduce the probability of ignition more quickly and more broadly.

4. Mitigation of Impact on Customers and Other Residents Affected During a PSPS Event (Section 7.3.3.11) – Part A

a) Initiative Being Altered

2021 WMP Section: Section 7.3.3.11
Page Number: 136
Initiative Name: Mitigation of Impact on Customers and Other Residents Affected During a PSPS Event – Part A
Program: Generator Rebate Program

b) Planned Budget

Type of Spend	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)	[redacted]	[redacted]	[redacted]	[redacted]
New Planned	[redacted]	$28,000	$39,000	$67,000
Actual[11]	[redacted]	$0	TBD	$0

No funds have been identified for redeployment for this change. The proposed funds are incremental.

c) Type of Change Being Proposed

PacifiCorp is proposing a two-pronged increase in scale to this initiative by introducing two new programs. One of these programs, the generator rebate program, is included in this proposed change.

d) Detailed Description of the Proposed Change

In the 2021 WMP Update, PacifiCorp did not include an additional initiative to specifically mitigate the impact on customers and other residents affected during a PSPS event. Because of the infrequent application of PSPS in PacifiCorp's service territory, PacifiCorp has not prioritized this initiative relative to the other initiatives geared toward the reduction of wildfire risk itself.

Nonetheless, because of the increasing threat of wildfire and potential for PSPS, PacifiCorp is continuing to enlarge the company's PSPS mitigation initiatives and, through participation in workshops, advisory councils, and briefings with stakeholders, the Commission, and the Office of Energy Safety, PacifiCorp identified this as an area for improvement in preparation for the 2022 fire season.

Along these lines, PacifiCorp is proposing to implement a rebate program for the purchase of back-up power equipment to all customer living in a High Fire Threat District. The rebate program will include options for electric batteries, which are more efficient, more reliable, and safer; the program will also include traditional combustion generators as alternatives eligible for a rebate. The proposed change

[11] Actual spend in 2021 as of 10/28/2021.

includes funding to update software interfaces, manage the program, and offer tiered rebates to customers living in a High Fire Threat District.

e) Justification for the Proposed Change

Reducing the impact of PSPS is a significant goal of PacifiCorp's wildfire mitigation planning. While de-energization of power lines during periods of extreme wildfire weather benefit public safety by reducing the risk of a utility-related wildfire, PacifiCorp understands that there can also be negative consequences on the community if electric power is unavailable. De-energization can impact communication systems, businesses that rely on power to serve customers, residential customers, irrigation systems, and traffic lights. Accordingly, a PSPS is only implemented when necessary, and successful deployment of wildfire mitigation initiatives reduce the likelihood that a PSPS will occur. This proposed change will mitigate the potential impacts to customers if a PSPS is necessary.

f) Change in Expected Outcomes

What outcomes, including quantitative ignition probability and PSPS risk reduction, was the changed initiative expected to achieve in the 2021 WMP Update?

This program was not included in the 2021 WMP Update and will not be operational until 2022.

What outcomes, including quantitative ignition probability and PSPS risk reduction, will the initiative deliver with the proposed adjustment?

With the proposed change, PacifiCorp will now be able to offer a backup power rebate option to customers living in a HFTD, similar to the large investor-owned electric utilities. Specifically, the proposed change will reduce the risk of PSPS through mitigating the impact to customers, should they choose to purchase backup generation and apply for the rebate. As the program will be offered to all customers within HFTDs, PacifiCorp anticipates that the impact will be widespread. However, any quantitative impact will depend on customer choice and interest in the program. The company is designing a program that minimizes customer barriers to participation.

5. Mitigation of Impact on Customers and Other Residents Affected During a PSPS Event (Section 7.3.3.11) – Part B

a) Initiative Being Altered

2021 WMP Section: Section 7.3.3.11
Page Number: 136
Initiative Name: Mitigation of Impact on Customers and Other Residents Affected During a PSPS Event – Part B
Program: Free to the Customer Portable Batteries

b) Planned Budget

Type of Spend	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)	[redacted]	[redacted]	[redacted]	[redacted]
New Planned	[redacted]	$141,000	$310,000	$451,000
Actual[12]	[redacted]	$0	TBD	$0

No funds have been identified for redeployment for this change. The proposed funds are incremental.

c) Type of Change Being Proposed

This is the second of a two-pronged approach to increasing the scale of this initiative by introducing two new programs. One of these programs, the free-to-the-customer portable battery program, is included in this proposed change.

d) Detailed Description of the Proposed Change

In the 2021 WMP Update, PacifiCorp did not include an additional initiative to specifically mitigate the impact on customers and other residents affected during a PSPS event. Because of the infrequent application of PSPS in PacifiCorp's service territory, PacifiCorp has not prioritized this initiative relative to the other initiatives geared toward the reduction of wildfire risk itself.

Nonetheless, because of the increasing threat of wildfire and potential for PSPS, PacifiCorp is continuing to enlarge the company's PSPS mitigation initiatives and, through participation in workshops, advisory councils, and briefings with stakeholders, the Commission, and the Office of Energy Safety, PacifiCorp identified this as an area for improvement in preparation for the 2022 fire season.

Along these lines, PacifiCorp is proposing to implement a program, at no cost to the customer, of back-up batteries to medical baseline customers who depend on medical equipment powered by electricity. This

[12] Actual spend in 2021 as of 10/28/2021.

program includes both up front technical evaluation of the customer's unique needs to specify the correct device as well as education and technical support to the customer once installed. PacifiCorp is pleased to update that the program is now operational. A contract with a third-party vendor was executed on September 10, 2021, and battery assessments are currently underway. Pacific Power anticipates that batteries will be delivered to all registered medical baseline customers within PSPS areas by the end of 2021. PacifiCorp anticipates continuing to report on progress in the 2022 WMP Update.

e) Justification for the Proposed Change

Reducing the impact of PSPS is a significant goal of PacifiCorp's wildfire mitigation planning. While de-energization of power lines during periods of extreme wildfire risk benefit public safety by reducing the risk of a utility-related wildfire, PacifiCorp understands that there can also be negative consequences on the community if electric power is unavailable. De-energization can impact communication systems, businesses that rely on power to serve customers, residential customers, irrigation systems, and traffic lights. Accordingly, a PSPS is only implemented when necessary, and successful deployment of wildfire mitigation initiatives reduce the likelihood that a PSPS will occur. This proposed change will mitigate the potential impacts to customers if a PSPS is necessary.

Additionally, the PSPS Phase III Guidelines, issued June 29, 2021, identified a need requirement for utilities to administer a program to support resiliency for customers that rely on electricity to maintain necessary life functions, including for durable medical equipment and assistive technology. This proposed change includes implementation of a new program designed to meet this new requirement.

f) Change in Expected Outcomes

What outcomes, including quantitative ignition probability and PSPS risk reduction, was the changed initiative expected to achieve in the 2021 WMP Update?

This program was not included in the 2021 WMP Update and will not be operational during a fire season until 2022.

What outcomes, including quantitative ignition probability and PSPS risk reduction, will the initiative deliver with the proposed adjustment?

With the proposed change, PacifiCorp will now be able to offer free-to-the customer portable batteries to eligible medically dependent customers living in high-risk areas, such as Tier 2 and Tier 3, similar to other major electric utilities operating in CA. Specifically, the proposed change will reduce the risk of PSPS through mitigating the impact to customers, should they choose to participate in the program. As the program will be offered to any medically dependent customer living in a high-risk area, PacifiCorp anticipates that the impact will be initially targeted at PSPS zones but eventually widespread. However, any quantitative impact will depend on customer choice and interest in leveraging the program.

C. Data Governance Initiative Changes

1. Central Repository for Data

a) Initiative Being Altered

2021 WMP Section: Section 7.3.7.1
Page Number: 174
Initiative Name: Central Repository for Data
Utility Name: GIS Data Evolution and Submissions

b) Planned Budget

Type of Spend	2020	2021	2022	2020 - 2022 WPM Term
Planned (2021 WMP Update)	[redacted]	$181,000	$181,000	$543,000
New Planned		$210,000	$400,000	$791,000
Actual[13]	$181,000	$158,178	TBD	$339,178

No funds have been identified for redeployment for this change. The proposed funds are incremental.

c) Type of Change Being Proposed

PacifiCorp sees this proposed change sitting in Section 7.3.7, data governance, long term. PacifiCorp recognizes that this section of the 2021 WMP Update is not explicitly included in the 2021 Change Order Process. However, for the sake of transparency and because of the critical tie to other initiatives under Risk Assessment & Mapping, Situational Awareness, and Grid Hardening, and ultimately PSPS assessment and strategy, PacifiCorp has included a proposed increase in scale to the current Centralized Repository for Data initiative in this Change Order Report.

d) Detailed Description of the Proposed Change

Data governance was an area for improvement in PacifiCorp's 2020 WMP and identified in Resolution WSD-002. Regarding Guidance-10, the following summary was included in the 2021 WMP Update:

"As the reporting of GIS data is expected to be on-going, initial efforts were focused on the development of an architecture and framework to ensure consistent and sustainable delivery of the data. Since the First QR, PacifiCorp made significant progress on the development of a data extraction and translation process to deliver data consistent with the WSD GIS Data Schema Requirements on a quarterly basis and provided 45% of the asset data requested in the company's December 2020 quarterly report. In addition, a significant portion of the requested PSPS Event and Risk Event data was further incorporated in to 2021 WMP. PacifiCorp is adapting the newly created processes to meet the forthcoming structure changes to

[13] Actual spend in 2021 as of 10/1/2021.

the GIS Data Schema requirements."

At the time of the 2021 WMP Update, the revised GIS Data Schema requirements along with the Compliance Operational Protocols had been recently published.[14] Therefore, PacifiCorp had limited information on what internal resources would be required to manage delivery of data on a quarterly basis consistent with these requirements.

Through experience gained in 2021, PacifiCorp learned that this effort requires the extraction and translation of non-spatial data into GIS format. Similar to monitoring and auditing the WMP, the evolution of the company's GIS data capabilities touches many departments throughout the company and requires an intense amount of input and coordination for all initiatives in the WMP. Examples of initiatives include risk assessment and mapping, to ensure data is consistent across the various platforms, grid hardening, to ensure that projects are properly categorized and represented spatially, and vegetation management, to demonstrate completion of key vegetation management initiatives and monitor compliance.

PacifiCorp previously underestimated the resources needed to meet the compliance reporting requirement and support the on-going delivery of compliance datasets. Additionally, as expressed by the Office of Energy Safety on October 26, 2021 at a GIS Data Discussion meeting with the Small and Multijurisdictional Utilities, the GIS data schema requirements are expected to continue evolving and changing, which will require incremental utility resources to ensure compliance.

PacifiCorp is committed to maintaining compliance. Given these lessons learned by PacifiCorp in 2021 and future vision expressed by the Office of Energy Safety, PacifiCorp is now proposing a change to add resources specifically to manage and deliver these complex datasets on a quarterly basis consistent with the GIS Data Schema requirements and the Compliance Operational Protocols and published on February 16, 2021, pursuant to Public Utilities Code 8386.3(c)(1) and PUC 8389(e)(7). The overall impact of this change is an increase in funding of $248,000 over the 2020-2022 WMP Term. PacifiCorp anticipates that, as these requirements evolve, additional resource or tools may be needed in the future and does not rule out potential, future, change requests as more information becomes available or requirements change.

e) Justification for the Proposed Change

As described above, data governance was an area for improvement in PacifiCorp's 2020 WMP and was identified in Resolution WSD-002. Since the 2020 WMP and 2021 WMP Update, PacifiCorp has continued to make great strides and demonstrate progress in the delivery of GIS data on a quarterly basis to the Office of Energy Safety. To date, the company has been able to deliver a substantial portion of the asset data in the format requested and has expanded to include risk event, PSPS, inspection, and grid hardening data in various quarterly updates throughout 2021.

Based on experience gained in 2021, PacifiCorp now has a better understanding of the resources required to support this effort. Additionally, PacifiCorp now better understands the role that data plays in supporting the various initiatives included in the WMP, namely risk assessment and mapping and PSPS decision making. Location specific details regarding initiative progress can and should significantly impact how decisions are made and risk is assessed.

Furthermore, the Office of Energy Safety has expressed that the data reporting requirements will continue

[14] See 2021.02.16-compliance-operational-protocols.pdf (ca.gov)

to remain in place, with the data requirements themselves evolving, improving, and changing.

To facilitate decision making and risk assessments, ensure accurate reporting, and maintain compliance with Public Utilities Code (PUC) 8386.3(c)(1) and PUC 8389(e)(7) and the compliance protocols,[15] PacifiCorp is proposing this change.

f) Change in Expected Outcomes

What outcomes, including quantitative ignition probability and PSPS risk reduction, was the changed initiative expected to achieve in the 2021 WMP Update?

Improvements in data quality tied to this proposed change will not impact 2021 fire season, risk assessment capabilities, or PSPS decision making. However, improvements are anticipated to begin in 2022. Additionally, this proposed change will facilitate greater data accuracy in compliance reporting per the Compliance Operational Protocols and quarterly reporting requirements.

What outcomes, including quantitative ignition probability and PSPS risk reduction, will the initiative deliver with the proposed adjustment?

As described above, this proposed change will facilitate on-going compliance with the quarterly reporting requirements. Additionally, this proposed change will support enhanced data quality for PSPS decision making and risk assessments.

[15] See 2021.02.16-compliance-operational-protocols.pdf (ca.gov)