



June 21, 2024

Dear Stakeholders,

Enclosed is the Office of Energy Infrastructure Safety's Annual Report on Compliance regarding PacifiCorp's execution of its 2021 Wildfire Mitigation Plan.

This Annual Report on Compliance is hereby published as of the date of this letter. PacifiCorp may, if it wishes to do so, file a public response to this Annual Report on Compliance within 14 calendar days of the date of publication. Comments must be submitted to the Office of Energy Infrastructure Safety's E-Filing system in the 2021 Annual Report on Compliance docket.

Sincerely,

*Patrick Doherty*

Patrick Doherty  
Program Manager | Compliance Assurance Division  
Electrical Infrastructure Directorate  
Office of Energy Infrastructure Safety



**OFFICE OF ENERGY INFRASTRUCTURE SAFETY**  
**ANNUAL REPORT ON COMPLIANCE**  
**PACIFICORP**  
**2021 WILDFIRE MITIGATION PLAN UPDATE**

June 2024

# TABLE OF CONTENTS

- Executive Summary ..... 1
- 1. Introduction and Background ..... 3
  - 1.1 Legal Authority ..... 3
  - 1.2 Annual Compliance Process Cadence ..... 3
- 2. ARC Compliance Framework ..... 6
- 3. PacifiCorp’s 2021 WMP ..... 8
  - 3.1 2021 WMP Objectives ..... 8
  - 3.2 2021 WMP Update Initiatives ..... 8
- 4. Information Sources Used for ARC Assessment..... 13
  - 4.1 Electrical Corporation (EC) ARC ..... 13
    - 4.1.1 Overview ..... 13
    - 4.1.2 Relevant Information ..... 14
  - 4.2 Independent Evaluator (IE) ARC ..... 15
    - 4.2.1 Overview ..... 15
    - 4.2.2 Relevant Information ..... 15
  - 4.3 Inspections..... 17
    - 4.3.1 Overview ..... 17
    - 4.3.2 Relevant Information ..... 18
  - 4.4 Audits ..... 18
    - 4.4.1 Overview ..... 18
    - 4.4.2 Relevant Information ..... 19
  - 4.5 Data ..... 19
    - 4.5.1 Overview ..... 19
    - 4.5.2 Relevant Information ..... 19
  - 4.6 Third-Party Reports..... 20
    - 4.6.1 Overview ..... 20

- 5. Discussion..... 21
  - 5.1 Criterion 1: 2021 WMP Initiative Implementation ..... 21
    - 5.1.1 Completion of 2021 WMP Quantitative and Qualitative Targets ..... 22
    - 5.1.2 2021 WMP Initiative Funding ..... 23
  - 5.2 Criterion 2: 2021 WMP Objectives ..... 24
    - 5.2.1 Objective 1: Installation of 85 line miles of covered conductor ..... 25
    - 5.2.2 Objective 2: Installation and commissioning of 27 system automation programs .....25
    - 5.2.3 Objective 3: Replacement of 128 in-service wooden poles with fiberglass for enhanced structural resilience ..... 25
  - 5.3 Criterion 3: Wildfire Risk Reduction and Performance ..... 26
    - 5.3.1 Ignition Risk Metric Analysis ..... 26
    - 5.3.2 Outcome Metric Analysis ..... 27
    - 5.3.3 Discussion..... 27
  - 5.4 Criterion 4: Satisfaction of 2021 WMP Goals..... 28
  - 5.5 Criterion 5: Execution, Management, and Documentation ..... 28
- 6. Conclusion..... 29

**LIST OF TABLES**

- Table 1: PacifiCorp’s 2021 WMP Planned Expenditure by Category ..... 9
- Table 2: PacifiCorp’s Planned Expenditure by Year ..... 10
- Table 3: PacifiCorp’s 2021 WMP Top 10 Planned Expenditure Initiatives..... 11
- Table 4: Summary of PacifiCorp IE ARC Findings..... 15

## Executive Summary

The Office of Energy Infrastructure Safety (Energy Safety) is charged with completing an annual review of California's electrical corporations' compliance with their approved Wildfire Mitigation Plans (WMP) and WMP Updates. Energy Safety's Annual Reports on Compliance (ARC) are produced 18 months after the electrical corporations complete a self-review of compliance (EC ARC) of their approved plans and an independent evaluator completes their own review of electrical corporation compliance with approved plans.

Energy Safety acknowledges that in 2021 PacifiCorp undertook efforts to reduce its wildfire risk, and in some instances, achieved its objectives and targets. However, on balance, PacifiCorp was largely unsuccessful in executing an actionable and adaptive plan for wildfire risk mitigation. This is primarily due to PacifiCorp's significant failure to achieve covered conductor installation targets (i.e., only 20 miles out of 81 miles targeted), given that the covered conductor initiative represented 53% of PacifiCorp's planned WMP expenditure in 2021. Energy Safety also found that PacifiCorp has several areas for improvement and continued learning.

Energy Safety's evaluation found that PacifiCorp completed 22 of 32 (or 70%) of its 2021 WMP initiatives, including seven of the top 10 initiatives with the largest allocated expenditure.

Of the missed initiative targets, the most notable was its missed covered conductor installation initiative target, where PacifiCorp only achieved 24% of the target. As the largest planned expenditure for its 2021 WMP Update, and as one of PacifiCorp's key objectives for the 2021 compliance period, PacifiCorp's failure to complete this initiative illustrates a lack of appropriate planning at the center of its wildfire mitigation operations.

Energy Safety considered all compliance assessments completed with respect to PacifiCorp's approved 2021 WMP Update, including audits, field inspections, and analysis of data submitted by PacifiCorp to Energy Safety. Energy Safety considered PacifiCorp's self-assessment in its EC ARC and the findings of its independent evaluator. Energy Safety also compared metrics related to PacifiCorp's performance including ignition, wire down, outage, and Public Safety Power Shutoff risk during the 2021 WMP Update compliance period.

PacifiCorp had fewer total ignitions on its system in 2021 compared to 2020, but had more ignitions compared to the recent six-year average. 2021 was a year where PacifiCorp's service territory saw fewer days with higher risk of fire danger (Red Flag Warning Days) when compared to those same time horizons. When comparing the number of ignitions relative to Red Flag Warning Days, PacifiCorp had a significantly higher rate of ignitions in 2021 than in recent years. Although there was a higher relative rate of ignitions, the consequence of those ignitions resulted in relatively minor overall outcomes. During 2021, PacifiCorp reported reductions in acreage burned (two acres total for 2021), no critical infrastructure damaged, and no fatalities or injuries.

PacifiCorp had one Public Safety Power Shutoff (PSPS) event in 2021, which was the same as in 2020. However, the normalized impact of the single PSPS event in 2021 increased relative to 2020 due to the reduction in Red Flag Warning Days from 2020 to 2021.

# 1. Introduction and Background

This Annual Report on Compliance (ARC) presents the Office of Energy Infrastructure Safety's (Energy Safety's) assessment of PacifiCorp's compliance with its 2021 Wildfire Mitigation Plan (WMP) Update.<sup>1</sup>

PacifiCorp submitted its 2021 WMP Update on March 5, 2021. Energy Safety approved PacifiCorp's 2021 WMP Update on July 14, 2021.<sup>2</sup>

## 1.1 Legal Authority

Energy Safety is responsible for overseeing compliance with electrical corporations' WMPs.<sup>3</sup> Energy Safety has broad authority to obtain and review information and data and to inspect property, records, and equipment of every electrical corporation in furtherance of its duties, powers, and responsibilities.<sup>4</sup> In addition to performing an overall assessment of compliance<sup>5</sup> with the WMP, Energy Safety audits each electrical corporation's vegetation management work for compliance with WMP requirements<sup>6</sup> and performs other reviews and audits. Energy Safety may rely upon metrics<sup>7</sup> to evaluate WMP Compliance, including performance metrics adopted by the California Public Utilities Commission (CPUC).<sup>8</sup> Annually, in consultation with Energy Safety, the CPUC adopts a wildfire mitigation plan compliance process.<sup>9</sup> The CPUC adopted the 2021 Compliance Process via Resolution M-4860 on December 2, 2021.<sup>10, 11</sup>

## 1.2 Annual Compliance Process Cadence

Pursuant to Public Utilities Code section 8385(a)(1), a "compliance period" means a period of approximately one year. In its Compliance Operational Protocols issued on February 16, 2021,

---

<sup>1</sup> California Public Utilities Code § 8386.3(c).

<sup>2</sup> Office of Energy Infrastructure Safety, "Evaluation of 2021 Wildfire Mitigation Plan Update PacifiCorp," July 14, 2021. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51658&shareable=true>.

<sup>3</sup> California Public Utilities Code § 8386.3(c).

<sup>4</sup> Government Code § 15475.

<sup>5</sup> California Public Utilities Code § 8386.3(c)(4).

<sup>6</sup> California Public Utilities Code § 8386.3(c)(5)(A).

<sup>7</sup> California Public Utilities Code §§ 326(a)(2), 8389(b)(1).

<sup>8</sup> California Public Utilities Code § 8389.

<sup>9</sup> California Public Utilities Code § 8389(d)(3).

<sup>10</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>.

<sup>11</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>.

Energy Safety defined the compliance period for 2020-2022 WMPs as January 1 to December 31 for each calendar year of the three-year WMP.<sup>12</sup>

Public Utilities Code section 326(a)(3) requires Energy Safety to utilize visual inspection of electrical corporation infrastructure and wildfire mitigation programs as means of assessing WMP compliance. Furthermore, Public Utilities Code section 8386.3(c) outlines the baseline statutory framework for assessing WMP compliance through a series of audits, reviews, and assessments performed by Energy Safety, independent evaluators, and the electrical corporations themselves. The statutory framework also lays out a defined timeframe for several of the compliance assessment components, as follows:

- Three months after the end of an electrical corporation's compliance period, each electrical corporation must submit an Electrical Corporation Annual Report on Compliance (EC ARC) addressing the electrical corporation's compliance with its plan during the prior calendar year.<sup>13</sup>
- Six months after the end of an electrical corporation's compliance period, an independent evaluator must submit an Independent Evaluator Annual Report on Compliance (IE ARC). The independent evaluators are engaged by each electrical corporation to review and assess the electrical corporation's compliance with its plan for the prior year. As a part of this report, the independent evaluator must determine whether the electrical corporation failed to fund any activities included in its plan.<sup>14</sup>
- In parallel with the above assessments, Energy Safety audits vegetation management activities. The results of the audit must specify any failure of the electrical corporation to fully comply with the vegetation management requirements in the WMP. Energy Safety then grants the electrical corporation a reasonable amount of time to correct and eliminate any deficiency specified in the audit.<sup>15</sup> Subsequently, Energy Safety issues a report describing any failure of the electrical corporation to substantially comply with the substantial portion of the vegetation management requirements in the electrical corporation's WMP.<sup>16</sup>
- Within 18 months after the electrical corporation submits its compliance report pursuant to Public Utilities Code section 8386.3(c)(1), Energy Safety must complete its

---

<sup>12</sup> California Public Utilities Commission, "Compliance Operational Protocols," Feb. 16, 2021. p. 1. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52615&shareable=true>.

<sup>13</sup> California Public Utilities Code § 8386.3(c)(1).

<sup>14</sup> California Public Utilities Code § 8386.3(c)(2)(B)(i).

<sup>15</sup> California Public Utilities Code § 8386.3(c)(5)(A).

<sup>16</sup> California Public Utilities Code § 8386.3(c)(5)(C).



annual compliance review.<sup>17, 18, 19</sup> Energy Safety memorializes the findings of its compliance review in this ARC.

---

<sup>17</sup> California Public Utilities Code § 8386.3(c)(4).

<sup>18</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>.

<sup>19</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. p. 2. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>.

## 2. ARC Compliance Framework

Pursuant to Government Code section 15475.1, Energy Safety's primary objective is to ensure that electrical corporations reduce wildfire risk and comply with energy infrastructure safety measures. Each electrical corporation is required to construct, maintain, and operate its infrastructure in a manner that will minimize the risk of catastrophic wildfire.<sup>20</sup>

Energy Safety's compliance assessment examines the totality of data and findings before the department. Compliance is the successful implementation of the electrical corporation's stated narratives, actions, targets, outcome metrics, and objectives in the electrical corporation's approved WMP, including providing supporting documentation. Energy Safety aims to ensure WMP implementation through the authorities and requirements outlined in Public Utilities Code sections 8386 – 8389.<sup>21, 22, 23</sup>

Energy Safety considers the following as part of its assessment:

1. Whether the electrical corporation implemented the wildfire mitigation initiatives in its approved WMP, including evaluating whether the electrical corporation funded and performed the commitments stated for each initiative. Further, whether the electrical corporation prioritized completion of work with the highest potential for reducing wildfire risk.<sup>24</sup>
2. Whether the electrical corporation achieved or sufficiently progressed its WMP objectives.
3. Wildfire risk reduction, including the performance of the electrical corporation's infrastructure relative to its wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.
4. Whether the electrical corporation made a good faith attempt to achieve its goals and comply with its WMP.

---

<sup>20</sup> California Public Utilities Code § 8386(a).

<sup>21</sup> California Public Utilities Code § 8386.3(c)(4).

<sup>22</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>.

<sup>23</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. p. 4. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>.

<sup>24</sup> Energy Safety evaluates funding data to ensure electrical corporations are dedicating resources to their initiative commitments. Energy Safety does not evaluate whether the cost of implementing each electrical corporation's plan was just and reasonable.

5. Whether the electrical corporation exhibited issues related to its execution, management, or documentation in the implementation of its WMP. This analysis may expand beyond the scope of any single WMP initiative.<sup>25</sup>

---

<sup>25</sup> Office of Energy Infrastructure Safety, "Compliance Guidelines (Section 7.1)," Sep. 2023. p. 16. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=55586&shareable=true>.

## 3. PacifiCorp 2021 WMP Update

This section provides a summary of PacifiCorp's commitments in its 2021 WMP Update. This section organizes the electrical PacifiCorp's commitments into two major categories:

1. 2021 WMP Update Objectives
2. 2021 WMP Update Initiatives

### 3.1 2021 WMP Update Objectives

The 2021 WMP Update Guidelines required each electrical corporation to describe the specific objectives of its 2021 WMP with respect to the following timeframes: before the next Annual WMP Update; within the next three years; and within the next 10 years (i.e, long-term planning beyond the three-year cycle).<sup>26</sup>

In reviewing compliance with PacifiCorp's 2021 WMP Update, Energy Safety considered whether PacifiCorp achieved or sufficiently progressed the objectives it set out to achieve before the next Annual WMP Update.

PacifiCorp's stated objectives to achieve before the next Annual WMP Update were:

- Complete installation of 85 line-miles of covered conductor,
- Complete installation and commissioning of 27 system automation programs, and
- Complete replacement of 128 in-service wooden poles with fiberglass for enhanced structural resilience.<sup>27</sup>

### 3.2 2021 WMP Update Initiatives

The 2021 WMP Update Guidelines required each electrical corporation to group its discussion of wildfire mitigation initiatives into the 10 categories listed in Table 1 below.

---

<sup>26</sup> California Public Utilities Commission, "Resolution WSD-011 Attachment 2.2: 2021 Wildfire Mitigation Plan Guidelines Template," Nov. 2020. p. 29. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/attachment-2.2-to-wsd-011-2021-wmp-guidelines-template.pdf>.

<sup>27</sup> PacifiCorp, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 13. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificorp\\_2021\\_wmp.pdf](https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificorp_2021_wmp.pdf).

PacifiCorp's 2021 WMP Update included a total of 32 initiatives allocated across seven of the 10 categories.<sup>28, 29</sup> PacifiCorp did not include discrete initiatives in the categories of grid operations, resource allocation, or emergency planning.

Table 1 below provides a summary of PacifiCorp's allocation of WMP initiatives across categories, its reported planned expenditure in each category for 2021, and the percentage of the total 2021 WMP budget each category represents.<sup>30</sup>

Some initiatives provided quantitative targets (e.g., miles completed for system hardening initiatives). Other initiatives included qualitative measures (e.g., development of a data governance and data mapping plan).

*Table 1: PacifiCorp's 2021 WMP Update Planned Expenditure by Category*

<b>Initiative Category</b>	<b>No. of Initiatives</b>	<b>2021 Planned Expenditure (\$K)</b>	<b>% of 2021 WMP Update Planned Budget</b>
<b>1. Risk Assessment and Mapping</b>	1	\$186	<1%
<b>2. Situational awareness and forecasting</b>	3	\$233	<1%
<b>3. Grid design and system hardening</b>	8	\$19,828 <sup>31, 32</sup>	70%

<sup>28</sup> PacifiCorp added an additional approved initiative through the change order process: 7.3.3.7 – Expulsion Fuse Replacement. PacifiCorp, “2021 Wildfire Mitigation Plan Update – Change Order Report,” Nov. 1, 2021. p. 17. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51848&shareable=true>.

<sup>29</sup> The 2021 WMP Update Guidelines provided ten initiatives categories: 1. Risk assessment and mapping, 2. Situational awareness and forecasting, 3. Grid design and system hardening, 4. Asset management and inspections, 5. Vegetation management and inspections, 6. Grid operations and protocols, 7. Data governance, 8. Resource allocation methodology, 9. Emergency planning and preparedness. 10. Stakeholder cooperation and community engagement.

<sup>30</sup> PacifiCorp reported its planned WMP initiative expenditures in Tables 3-1 and 3-2 of its 2021 WMP Update. In the June 2021 Draft Action Statement, PacifiCorp noted that Tables 3-1 and 3-2 of the 2021 WMP Update were compiled using data previously input and submitted in Table 12 of the 2020 Quarter 4 (Q4) QDR. In the data migration between reporting submissions, calculation errors were made when translating and compiling those values. Table 1 notes exceptions where the allocated planned expenditure between Tables 3-1 and 3-2 of the 2021 WMP and Table 12 of the 2020 Q4 QDR were not equivalent.

<sup>31</sup> Table 3-2 of PacifiCorp's 2021 WMP Update reports \$19,246,000. Per Table 12 of the Q4 2020 QDR, PacifiCorp under-reported \$532,000 of planned expenditure in its 2021 WMP Update due to inconsistently reporting expenditure in the thousands.

<sup>32</sup> 2021 planned expenditure also reflects an additional \$50,000 that were not originally reported in PacifiCorp's 2021 WMP but were later approved via a change order. PacifiCorp, “2021 Wildfire Mitigation Plan Update – Change Order Report,” Nov. 1, 2021. p. 17. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51848&shareable=true>.

Initiative Category	No. of Initiatives	2021 Planned Expenditure (\$K)	% of 2021 WMP Update Planned Budget
<b>4. Asset management and inspections</b>	8	\$876 <sup>33</sup>	3%
<b>5. Vegetation management and inspections</b>	10	\$6,855	24%
<b>6. Grid operations and protocols</b>	-	-	0%
<b>7. Data governance</b>	1	\$181 <sup>34</sup>	<1%
<b>8. Resource allocation methodology</b>	-	- <sup>35</sup>	0%
<b>9. Emergency planning and preparedness</b>	-	-	0%
<b>10. Stakeholder cooperation and community engagement</b>	1	\$73	<1%
<b>Total</b>	<b>32</b>	<b>\$28,232<sup>36</sup></b>	<b>100.0%</b>

Table 2 provides an overview of PacifiCorp's planned 2020-2022 WMP expenditure.

*Table 2: PacifiCorp's Planned Expenditure by Year*

Year	Planned Expenditure (\$K)
<b>2020</b>	\$24,708
<b>2021</b>	\$28,232

<sup>33</sup> Table 3-2 reports \$760,000. Per Table 12 of the Q4 2020 QDR, PacifiCorp under-reported \$116,000 of planned expenditure due to inconsistently reporting expenditure in the thousands.

<sup>34</sup> Table 3-2 reports \$186,000. Per Table 12 of the Q4 2020 QDR, PacifiCorp over-reported \$5,000 of planned expenditure erroneously.

<sup>35</sup> While Table 3-2 of the 2021 WMP Update reported \$233,000 in planned expenditure for this category, Table 12 of the Q4 2020 QDR reported planned expenditure of \$0 for this category.

<sup>36</sup> The differences in planned expenditure of \$27,772,000 per PacifiCorp's 2021 WMP Update vs. \$28,182,000 reported in this table are due to \$50,000 of additional planned expenditure approved via a change order, and the following presumed clerical errors in PacifiCorp's 2021 WMP Update: (a) an understatement of \$532,000 in Grid Design and System Hardening, (b) an understatement of \$116,000 in Asset Management and Inspections, (c) an overstatement of \$5,000 in Data Governance, and (d) an overstatement of \$233,000 in Resource Allocation.

Year	Planned Expenditure (\$K)
2022	\$23,850 <sup>37</sup>
2020-2022 Plan Period	\$76,740

Table 3 lists the top 10 initiatives by planned expenditure. The last row in Table 3 shows that the 10 listed initiatives (out of 332 total) make up 97% of PacifiCorp's total 2021 WMP planned expenditure.

Table 3: PacifiCorp's 2021 WMP Update Top 10 Planned Expenditure Initiatives<sup>38</sup>

Initiative Number	Initiative	2021 Planned Expenditure (\$K)	% of WMP Planned Budget
7.3.3.3	Covered conductor installation	\$15,014	53%
7.3.5.20	Vegetation management to achieve clearances around electric lines and equipment	\$6,561	23%
7.3.3.9	Installation of system automation equipment	\$2,062	7%
7.3.3.6	Distribution pole replacement and reinforcement, including with composite poles	\$1,898	7%

<sup>37</sup> Table 3-1 of PacifiCorp's 2021 WMP reports \$24,015,000. In the June 2021 Draft Action Statement, PacifiCorp noted this was a clerical error and corrected this to \$23,850,000. Energy Safety, "Draft Action Statement on PacifiCorp's 2021 Wildfire Mitigation Plan Update," June 2021. Appendix-12. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/misc/docket/387064777.pdf>.

<sup>38</sup> Derived from PacifiCorp Q4 2020 QDR, after adjusting for presumed clerical errors noted in the footnotes above. PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2020 (Table 12)," Feb. 18, 2021. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacifcorp\\_q4\\_2020\\_qdr.xlsx](https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacifcorp_q4_2020_qdr.xlsx).

Initiative Number	Initiative	2021 Planned Expenditure (\$K)	% of WMP Planned Budget
7.3.3.2	Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	\$432	2%
7.3.5.2	Detailed inspections of vegetation around distribution electric lines and equipment	\$294	1%
7.3.3.5	Crossarm maintenance, repair, and replacement	\$272	1%
7.3.4.11	Patrol inspections of distribution electric lines and equipment	\$247	1%
7.3.2.1	Advanced weather monitoring and weather stations	\$233	<1%
7.3.1.1	A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment	\$186	<1%
<b>Total</b>		<b>\$27,199</b>	<b>97%</b>



## 4. Information Sources Used for ARC Assessment

Energy Safety relied upon the following sources of information to conduct its analysis for PacifiCorp's ARC:<sup>39, 40, 41</sup>

- Information provided by the electrical corporation via the EC ARC and quarterly initiative update (QIU).
- Information provided by the independent evaluator via the IE ARC.
- Findings from Energy Safety field inspections.
- Findings from Energy Safety audits and assessments of the electrical corporation.
- Data submitted to Energy Safety by the electrical corporation,<sup>42</sup> including responses to data requests.
- Information provided by third parties also engaged in assessment activities of the electrical corporation.

This section provides the most relevant information from the sources listed above for the purpose of Energy Safety's assessment of PacifiCorp's compliance with its 2021 WMP.

### 4.1 Electrical Corporation (EC) ARC

#### 4.1.1 Overview

Three months after the end of the compliance period, the electrical corporation must submit its EC ARC. The Compliance Operational Protocols outline the minimum requirements and structure for each electrical corporation's 2021 EC ARC.<sup>43</sup> The 2021 EC ARCs must include:

- An assessment of whether the electrical corporation achieved its risk reduction intent by implementing all of its approved WMP initiatives, i.e., the degree to which initiative

---

<sup>39</sup> California Public Utilities Code § 8386.3(c)(4).

<sup>40</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>.

<sup>41</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>.

<sup>42</sup> Energy Safety receives data from the electrical corporation through three main paths: quarterly advice letter/quarterly notification submissions, quarterly data request submissions, and quarterly initiative updates.

<sup>43</sup> California Public Utilities Commission, "Compliance Operational Protocols," Feb. 16, 2021. pp. 10-12. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52615&shareable=true>.

activities have reduced ignition probabilities. If the electrical corporation failed to achieve the intended risk reduction, Energy Safety required the electrical corporation to provide a detailed explanation of why and reference where associated corrective actions were incorporated in its most recently submitted WMP.

- A full and complete listing of all change orders<sup>44</sup> and any other operational changes, such as initiative location changes, made to WMP initiatives, with an explanation of why the changes were necessary, and an assessment of whether the changes achieved the same risk reduction intent.
- Descriptions of all planned WMP initiative expenditure versus actual WMP initiative expenditure and an explanation of any differentials between the planned and actual expenditure.
- A description of whether the implementation of WMP initiatives changed the threshold(s) for triggering a PSPS event and/or reduced the frequency, scale, scope, and duration of PSPS events.
- A summary of all defects identified by Energy Safety within the annual compliance period, the corrective actions taken and the completion and/or estimated completion date.

### 4.1.2 Relevant Information

PacifiCorp timely submitted its EC ARC on March 31, 2022. PacifiCorp's EC ARC did not include the five components required by the Compliance Operational Protocols. Specifically, it did not report on "Planned vs. Actual WMP Update Initiative Expenditure," "PSPS Impacts," or "Energy Safety Identified Defects and Corrective Actions."

PacifiCorp was also required to report on the completion of its approved 2021 WMP initiatives in its 2021 EC ARC, and their overall impact on risk reduction for the period. PacifiCorp's 2021 EC ARC provided narrative progress updates surrounding some of the 10 major initiative categories,<sup>45</sup> but its reporting did not clearly and consistently identify whether it met or missed specific targets at the individual initiative level, including discussion of missed targets per initiative. Due to these extensive inconsistencies, Energy Safety does not include a summary of PacifiCorp's representation of its attainment or non-attainment of its 2021 WMP initiatives in this subsection of this report.

Additional information from the EC ARC is included in Appendix A and is discussed, as relevant, in Section 5 of this report.

---

<sup>44</sup> See WSD-002 for detail regarding the 2020 WMP change order process. California Public Utilities Commission, "Resolution WSD-002," June 11, 2020. pp. 32-35. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M340/K859/340859823.PDF>.

<sup>45</sup> PacifiCorp, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. pp. 3-5. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52232&shareable=true>.

## 4.2 Independent Evaluator ARC

### 4.2.1 Overview

Each year before March 1, Energy Safety, in consultation with the Office of the State Fire Marshal, must publish a list of qualified independent evaluators.<sup>46</sup> An electrical corporation must each engage an independent evaluator from the list to review and assess its compliance with its approved WMP.<sup>47</sup> The independent evaluator must issue its IE ARC by July 1 of each year, covering the previous calendar year.<sup>48</sup> Energy Safety considered the independent evaluator's findings in this ARC. However, the independent evaluator's findings are not binding on Energy Safety's final determination of WMP compliance.<sup>49</sup>

### 4.2.2 Relevant Information

PacifiCorp selected Guidehouse, Inc. & NV5 as the independent evaluators to assess its compliance with its 2021 WMP Update. Guidehouse, Inc. & NV5 (henceforth referenced as "the IE") issued a combined IE ARC on July 1, 2022.

The IE evaluated 27 initiatives, of which the IE found PacifiCorp noncompliant with eight.<sup>50</sup>

Table 4 below provides a summary of the IE's findings. A finding of "Undetermined" means the IE was unable to determine whether PacifiCorp met its WMP target.

*Table 4: Summary of PacifiCorp IE ARC Findings*

Finding Category	# of Initiatives
<b>Compliant</b>	19
<b>Noncompliant</b>	8
<b>Undetermined</b>	0
<b>Total</b>	27

<sup>46</sup> California Public Utilities Code § 8386.3(c)(2)(A).

<sup>47</sup> California Public Utilities Code § 8386.3(c)(2)(B).

<sup>48</sup> California Public Utilities Code § 8386.3(c)(2)(B).

<sup>49</sup> California Public Utilities Code § 8386.3(c)(2)(B)(ii).

<sup>50</sup> Initiative 7.3.3.7 Expulsion Fuse Replacement was not evaluated by the IE. Additionally, Initiative 7.3.3.13 Pole Loading Pilot was aggregated with Initiative 7.3.3.6 Targeted Pole Replacement. As noted previously, for the purpose of this report Energy Safety bases its review off 32 initiatives described in PacifiCorp's 2021 WMP.

The eight initiatives with IE findings of noncompliance are discussed below.

- 7.3.3.3 Covered Conductor Installation
  - IE Finding: 20 line-miles out of goal of 81 line-miles of covered conductor were installed in 2021.<sup>51</sup>
  - PacifiCorp self-identified this initiative as non-compliant.
- 7.3.3.6 Targeted Distribution Pole Replacement
  - IE Finding: 87 poles out of goal of 128 poles were replaced in 2021.<sup>52</sup>
  - PacifiCorp self-identified this initiative as non-compliant. Although PacifiCorp initially confirmed that only 87 of 128 poles were replaced due to supply chain delays, permitting delays, and limited construction resources (via IE Data Request 116), in a supplemental response to Energy Safety (Data Request 155) it later provided evidence that 263 poles were replaced.
- 7.3.3.12 Small Diameter Conductor Replacement
  - IE Finding: Approximately one line-mile of small diameter conductor out of goal of four line-miles was replaced in 2021.<sup>53</sup>
  - PacifiCorp self-identified this initiative as non-compliant.
- 7.3.4.11 Standard Distribution Patrol Inspections
  - IE Finding: 50,576 inspections out of goal of 50,603 were completed in 2021.<sup>54</sup>
  - PacifiCorp did not self-identify this initiative as non-compliant.
- 7.3.4.15 Substation Inspections
  - IE Finding: 438 inspections out of goal of 444 inspections were completed in 2021.<sup>55</sup>
  - PacifiCorp did not self-identify this initiative as non-compliant.
- 7.3.5.5 Fuel management and reduction of “slash” from vegetation management activities (Expanded Pole Clearing)
  - IE Finding: 1,595 out of 3,047 targeted pole clearings.<sup>56</sup>
  - PacifiCorp did not self-identify this initiative as non-compliant.
- 7.3.5.11 Patrol inspections of vegetation around distribution electric lines and equipment (Augmented Distribution Readiness Patrol)

---

<sup>51</sup> Guidehouse, Inc. & NV5, “Final Independent Evaluator ARC,” Jul. 15, 2022. p. 33. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52689&shareable=true>.

<sup>52</sup> Guidehouse, Inc. & NV5, “Final Independent Evaluator ARC,” Jul. 15, 2022. p. 36. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52689&shareable=true>.

<sup>53</sup> Guidehouse, Inc. & NV5, “Final Independent Evaluator ARC,” Jul. 15, 2022. p. 39. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52689&shareable=true>.

<sup>54</sup> Guidehouse, Inc. & NV5, “Final Independent Evaluator ARC,” Jul. 15, 2022. p. 22. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52689&shareable=true>.

<sup>55</sup> Guidehouse, Inc. & NV5, “Final Independent Evaluator ARC,” Jul. 15, 2022. p. 39. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52689&shareable=true>.

<sup>56</sup> Guidehouse, Inc. & NV5, “Final Independent Evaluator ARC,” Jul. 15, 2022. p. 15. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52689&shareable=true>.

- IE Finding: 1,167 line-miles of inspections out of goal of 1,369 line-miles inspected.<sup>57</sup>
- PacifiCorp did not self-identify this initiative as non-compliant.
- 7.3.5.13 Quality assurance / quality control of vegetation inspections
  - IE Finding: 1,385 line-miles of audited inspections out of goal of 1,717 miles of audited inspections.<sup>58</sup>
  - PacifiCorp did not self-identify this initiative as non-compliant.

After considering PacifiCorp's response to the IE ARC, Energy Safety agrees with three of the eight IE findings of noncompliance.<sup>59</sup> Those include:

- 7.3.3.3 – Covered Conductor Installation
- 7.3.3.12 – Small Diameter Conductor Replacement
- 7.3.5.5 – Fuel management and reduction of “slash” from vegetation management activities (Expanded Pole Clearing)

Additional information from the IE ARC is discussed, as relevant, in Section 5 of this report.

## 4.3 Inspections

### 4.3.1 Overview

Pursuant to Public Utilities Code section 326(a)(3), Energy Safety conducts field inspections of each electrical corporation's infrastructure to ensure WMP compliance. In 2021, Energy Safety conducted field inspections of each electrical corporation's infrastructure to validate WMP compliance and assess infrastructure for deficiencies, errors, or conditions with the potential to increase ignition risk.

In November 2021, Energy Safety transitioned from Inspection Program v1 to Inspection Program v2. Inspections conducted in 2021 under Inspection Program v1 were general inspections of the electrical corporation's infrastructure. Inspections conducted under Inspection Program v2 are comprised of two types of inspections: WMP inspections and General Wildfire Safety (GWS) Inspections. WMP inspections are specific to WMP initiative completeness and utilize information contained in the electrical corporations' quarterly data report (QDR) submissions. During WMP inspections, Energy Safety ensures that the data reported by the electrical corporation is accurate, that the electrical corporation completed the initiative activity as reported, and that the electrical corporation adhered to the applicable initiative protocols and procedures. If Energy Safety finds inaccurate data,

---

<sup>57</sup> Guidehouse, Inc. & NV5, “Final Independent Evaluator ARC,” Jul. 15, 2022. p. 24. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52689&shareable=true>.

<sup>58</sup> Guidehouse, Inc. & NV5, “Final Independent Evaluator ARC,” Jul. 15, 2022. p. 26. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52689&shareable=true>.

<sup>59</sup> Please refer to Appendix C of this report for a detailed assessment of PacifiCorp's performance against its stated initiatives, including the reasoning for agreement with the IE on three of eight findings of noncompliance.

incomplete work, or that the electrical corporation failed to adhere to protocols or procedures, it issues a Notice of Violation (NOV) to the electrical corporation.

GWS inspections assess electrical corporation infrastructure for deficiencies, errors, or conditions with the potential to increase ignition risk. If Energy Safety finds a deficiency, error, or condition with the potential to increase the risk of ignition, a Notice of Defect (NOD)<sup>60,61</sup> is issued. An NOD is defined as “A deficiency, error, or condition increasing the risk of ignition posed by electrical lines and equipment.”

### 4.3.2 Relevant Information

Energy Safety performs inspections utilizing an electrical corporation's initiative activity data applicable to the WMP year compliance period. Energy Safety conducted 7,890 inspection activities in PacifiCorp's service territory in 2021.

Energy Safety conducted no inspections under Inspection Program v1 for PacifiCorp's infrastructure during the 2021 WMP Cycle.

As a result of inspection activities under Inspection Program v2, Energy Safety identified two defects. PacifiCorp timely corrected the defects identified by Energy Safety. Energy Safety also notified PacifiCorp of 132 conditions presenting minor risk. Minor risk notifications included evidence of transformer damage, covered conductor and targeted pole replacement reported as completed when it was not, pole ground wire uncovered or not secured to poles, deteriorated poles, vegetation touching guy wire above the insulator, pole clearing, and danger trees near PacifiCorp assets.

## 4.4 Audits

### 4.4.1 Overview

Public Utilities Code section 8386.3(c)(5)(A) requires Energy Safety to perform an audit to determine whether the electrical corporation “substantially complied with the substantial portion”<sup>62</sup> of its vegetation management requirements in its WMP. Energy Safety refers to this audit as the Substantial Vegetation Management (SVM) audit. Pursuant to Public Utilities Code section 8386(c)(5), Energy Safety conducted an audit of PacifiCorp's compliance with the vegetation management requirements in its 2021 WMP Update.

---

<sup>60</sup> Government Code § 15475.2.

<sup>61</sup> 14 California Code Regulations § 29302(b)(1).

<sup>62</sup> California Public Utilities Code § 8386.3(c)(5)(C).

## 4.4.2 Relevant Information

On March 26, 2024, Energy Safety issued its SVM Audit for PacifiCorp. The purpose of the SVM Audit is to assess whether PacifiCorp met its quantitative commitments and verifiable statements in its 2021 WMP Update related to vegetation management activities.

In the SVM Audit, Energy Safety found that PacifiCorp did not complete the work required for two (2) of the 18 initiatives.

On May 14, 2024, Energy Safety issued its SVM Audit Report finding that PacifiCorp substantially complied with the substantial portion of the vegetation management requirements in its 2021 WMP Update.

The specific findings from Energy Safety's SVM Audit Report are detailed in Appendix B.

## 4.5 Data

### 4.5.1 Overview

Energy Safety analyzed performance metrics and other data in assessing PacifiCorp's performance of the work required by its 2021 WMP Update.<sup>63, 64</sup> Energy Safety required each electrical corporation to submit spatial and non-spatial data through QIUs, QDRs, and Quarterly Notifications (QNs).

### 4.5.2 Relevant Information

Energy Safety analyzed whether PacifiCorp met its 2021 WMP quantitative and qualitative initiative targets and analyzed performance of PacifiCorp's infrastructure relative to certain ignition risk and outcome metrics.

Energy Safety's Initiative Performance Analysis is detailed in Appendix C.

Energy Safety's Ignition Risk and Outcomes Metrics Analysis is detailed in Appendix D.

Findings from those analyses are included, as relevant, in Section 5 of this report.

---

<sup>63</sup> California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>.

<sup>64</sup> Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. pp. 4-5, 9. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K146/428146324.pdf>.

## 4.6 Third-Party Reports

### 4.6.1 Overview

When available, Energy Safety also utilizes authoritative, third-party reports to inform its compliance assessment. For example, Energy Safety may utilize CPUC and California Department of Forestry and Fire Protection (CAL FIRE) wildfire investigation reports, CAL FIRE Wildfire Activity Statistics, and other reports to supplement and corroborate the evidence collected during its compliance assessment of the electrical corporation.



## 5. Discussion

This section provides Energy Safety's assessment of PacifiCorp's performance in 2021 in relation to each of the evaluation criteria set forth in Energy Safety's Compliance Guidelines:

1. Whether the electrical corporation implemented the wildfire mitigation initiatives in its approved WMP, including evaluating whether the electrical corporation funded and performed the commitments stated for each initiative. Further, whether the electrical corporation prioritized completion of work with the highest potential for reducing wildfire risk.<sup>65</sup>
2. Whether the electrical corporation achieved or sufficiently progressed its WMP objectives.
3. Wildfire risk reduction, including the performance of the electrical corporation's infrastructure relative to its wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.
4. Whether the electrical corporation made a good faith attempt to achieve its goals and comply with its WMP.
5. Whether the electrical corporation exhibited issues related to its execution, management, or documentation in the implementation of its WMP. This analysis may expand beyond the scope of any single WMP initiative.

### 5.1 Criterion 1: 2021 WMP Initiative Implementation

This section considers whether PacifiCorp implemented the wildfire mitigation initiatives in its approved WMP, including evaluating whether PacifiCorp funded and performed the commitments stated for each initiative.

To accomplish this, Energy Safety assessed:

1. Whether PacifiCorp met the quantitative and qualitative targets provided in its 2021 WMP Update, and
2. The extent to which PacifiCorp funded each initiative.

---

<sup>65</sup> Energy Safety evaluates funding data to ensure electrical corporations are dedicating resources to their initiative commitments. Energy Safety does not evaluate whether the cost of implementing each electrical corporation's plan was just and reasonable.

### 5.1.1 Completion of 2021 WMP Quantitative and Qualitative Targets

Based on Energy Safety's analysis, in conjunction with the department's review of the EC ARC and IE ARC, Energy Safety finds that PacifiCorp substantially met or exceeded the targets of 22 of its 32 2021 WMP Update initiatives. This represents a 70% completion rate.

Energy Safety finds that PacifiCorp failed to substantially meet targets for five of its 32 initiatives, and that there is insufficient information to draw conclusions regarding five other initiatives.

Appendix C provides detail at the initiative level on Energy Safety's comprehensive assessment of PacifiCorp's performance against its stated initiatives.

The following are the three quantitative initiatives for which PacifiCorp did not meet its targets:

#### Grid Design & System Hardening

1. Covered conductor installation (7.3.3.3):
  - PacifiCorp completed 20 miles against an 81 mile target<sup>66</sup> (a 24% completion rate).
2. Small Diameter Conductor Replacement (7.3.3.12):
  - PacifiCorp completed one mile against a 3.78 mile target (a 26% completion rate).

#### Vegetation Management & Inspections

3. Fuel management and reduction of "slash" from vegetation management activities (7.3.5.5):
  - PacifiCorp completed 2,872 activities against a quantitative target of 3,047 (a 94% completion rate).

The following are the two qualitative initiatives for which PacifiCorp did not meet its targets:

#### Grid Design & System Hardening

1. Expulsion Fuse Replacement (7.3.3.7):
  - PacifiCorp did not begin work on this initiative despite having established planned expenditure of \$50,000.

---

<sup>66</sup> PacifiCorp's 2021 WMP Update specified a target of 85.2-line miles in its Table 5.43-5-1. In the narrative of the WMP, however, PacifiCorp referred readers to the Table 12 Q4 2020 QDR attachment included with the WMP submission, which stated a target of 81. The target of 81 appears to be derived from 85 line miles, minus 3.78 miles from initiative 7.3.3.12. This report adopts the 81 line-miles target as the actual quantitative target for this initiative in 2021. See PacifiCorp, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p.159. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificcorp\\_2021\\_wmp.pdf](https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificcorp_2021_wmp.pdf). PacifiCorp, "Attachment 1 - 2021 Performance Metrics [PacifiCorp WMP Update]" Mar. 5, 2021. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp\\_q4\\_2020\\_qdr.xlsx](https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp_q4_2020_qdr.xlsx).

2. Pilot 2: Pole Loading/LiDAR (7.3.3.13):
  - PacifiCorp did not expend any funds against a planned expenditure of \$100,000 and did not develop an overall plan as a result of pilot.

Energy Safety found in many instances that PacifiCorp identified initiatives as distinct in its 2021 WMP Update (including assigning planned expenditure for the initiatives), but failed to track the work performed, and instead relied on expenditure for tracking of progress. In some instances, initial targets were not clearly defined in the 2021 WMP Update, and PacifiCorp failed to report progress updates in ways that allowed Energy Safety to assess progress. The discrepancies observed in PacifiCorp's reporting highlight the importance of establishing proper quality controls over its WMP reporting.

For five of its 32 initiatives, PacifiCorp failed to provide sufficiently robust analysis across its reporting to support a conclusion on whether or not it met its targets. These initiatives are:

1. 7.3.1.1 Risk assessment and mapping
2. 7.3.3.2 Circuit breaker maintenance and installation to de-energize lines upon detecting a fault
3. 7.3.4.14 Quality assurance / quality control of overhead inspections
4. 7.3.7.1 Centralized data repository
5. 7.3.10.1 Multi-Pronged community engagement

Overall, Energy Safety finds that PacifiCorp substantially met or exceeded 70% of its 2021 WMP Update initiative targets. This overall finding should be considered in the context of PacifiCorp's significant failure to achieve covered conductor installation targets (i.e., only 20 miles out of 81 miles targeted), given that the covered conductor initiative represented 53% of PacifiCorp's planned WMP expenditure in 2021.

### **5.1.2 2021 WMP Update Initiative Funding**

Energy Safety evaluated the extent to which PacifiCorp funded the initiative targets in its 2021 WMP Update, utilizing data from PacifiCorp's EC ARC and IE ARC.

Each EC ARC requires descriptions of all planned WMP initiative expenditure versus actual expenditure and an explanation of any differentials between the planned and actual expenditure.<sup>67</sup> However, PacifiCorp failed to provide granular information in its EC ARC and provided planned vs. actual expenditure only at the major category level, rather than at the initiative level.

In the absence of adequate information from PacifiCorp's EC ARC, Energy Safety leveraged information from PacifiCorp's Q4 QIU for the 10 initiatives for which planned and actual

---

<sup>67</sup> California Public Utilities Commission, "Compliance Operational Protocols," Feb. 16, 2021. pp. 10-12. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52615&shareable=true>.

expenditures were reported.<sup>68</sup> Of these 10, PacifiCorp reported that its actual expenditures were lower than its planned expenditures for the following four initiatives:

- Circuit Breaker Maintenance & Replacement (7.3.3.2) - PacifiCorp expended \$307,000 vs. a \$432,000 planned expenditure target. PacifiCorp did not provide an explanation for the under expenditure. Energy Safety was unable to conclude whether PacifiCorp met its target for this initiative.
- Expulsion Fuse Replacement (7.3.3.7) - PacifiCorp expended \$0 vs. a \$50,000 planned expenditure target. PacifiCorp did not provide an explanation for the under expenditure. Energy Safety determined that PacifiCorp did not meet the qualitative target for this initiative.
- Pilot 2: Pole Loading/LiDAR (7.3.3.13) - PacifiCorp expended \$0 vs. a \$100,000 planned expenditure target. PacifiCorp did not provide an explanation for the under expenditure. Energy Safety determined that PacifiCorp did not meet the qualitative target for this initiative.
- Multi-Pronged Community Engagement (7.3.10.1) - PacifiCorp expended \$58,000 vs. a \$73,000 planned expenditure target. Energy Safety was unable to conclude whether PacifiCorp met the qualitative target for this initiative.

In terms of significance of completed initiatives relative to expenditure, PacifiCorp only substantially met targets for seven of the top 10 expenditure initiatives. PacifiCorp failed to achieve its covered conductor installation targets (i.e., only 20 miles out of 81 miles targeted), and this failure was highly significant given that this initiative was PacifiCorp's top initiative in terms of planned expenditure (7.3.3.3 – Covered Conductor Installation, representing 53% of PacifiCorp's planned 2021 WMP Update expenditure). Energy Safety could not determine if PacifiCorp met its target for two of the other top 10 expenditure initiatives (7.3.3.2 - Circuit Breaker Maintenance & Replacement, and 7.3.1.1 – Risk Mapping).

## 5.2 Criterion 2: 2021 WMP Objectives

This section considers whether PacifiCorp achieved or sufficiently progressed its 2021 WMP objectives.

PacifiCorp's specific objectives for its 2021 WMP year (i.e. before the next Annual WMP Update) were:

- Objective 1: Complete installation of 85 line-miles of covered conductor.
- Objective 2: Complete installation and commissioning of 27 system automation programs.

---

<sup>68</sup> This means that for 22 of PacifiCorp's 32 initiatives, Energy Safety was unable to make a determination on planned vs. actual expenditure.

- Objective 3: Proactive replacement of 128 in-service wooden poles with fiberglass for enhanced structural resilience.<sup>69</sup>

PacifiCorp's performance relative to these objectives is discussed below.

### **5.2.1 Objective 1: Installation of 85 line miles of covered conductor**

In 2021, PacifiCorp missed its targets for the initiative meant to progress this objective, having only completed 20 of its planned 81 line-miles under initiative 7.3.3.3 (Covered Conductor Installation).

PacifiCorp reported many issues related to this initiative, including supply chain delays, permitting delays, and limited construction resources. PacifiCorp ultimately completed less than 25% of this target despite having budgeted the largest amount of planned expenditure for the initiative aimed at progressing this objective. The importance of failing to meet this goal should not be understated as it represented a significant component of PacifiCorp's effort to reduce wildfire risk.

In light of the evidence above, Energy Safety finds that PacifiCorp did not sufficiently progress Objective 1.

### **5.2.2 Objective 2: Installation and commissioning of 27 system automation programs**

PacifiCorp finished the construction of 31 of its targeted 27 transmission and distribution system automation devices in 2021, exceeding its target.

In light of the evidence above, Energy Safety finds that PacifiCorp sufficiently progressed Objective 2.

### **5.2.3 Objective 3: Replacement of 128 in-service wooden poles with fiberglass for enhanced structural resilience**

Despite inadequate EC ARC reporting and inaccurate QIU reporting, Energy Safety was able to obtain sufficient evidence via data requests that indicated that PacifiCorp met its objective to replace 128 in-service wooden poles with fiberglass poles for enhanced structural resilience. In a response to Data Request 155, PacifiCorp provided evidence in tabular format indicating

---

<sup>69</sup> These objectives are characterized by PacifiCorp as being included in its “[k]ey” objectives for the 2021 compliance period, but other “key” objectives are not defined by PacifiCorp elsewhere in its 2021 WMP Update. This report therefore assumes that these three objectives are its objectives for the 2021 compliance period. See PacifiCorp, “2021 Wildfire Mitigation Plan Update,” Mar. 5, 2021. p. 13. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificorp\\_2021\\_wmp.pdf](https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificorp_2021_wmp.pdf).

that it had replaced and/or reinforced a total of 86 transmission poles and 177 distribution poles in 2021, for a total of 263 poles, exceeding its target of 128.

In light of the evidence above, Energy Safety finds that PacifiCorp sufficiently progressed Objective 3.

## 5.3 Criterion 3: Wildfire Risk Reduction and Performance

This section considers the performance of PacifiCorp's infrastructure relative to its wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.

To accomplish this, Energy Safety:

- Performed a trend and year-over-year analysis of Ignition Risk Metrics.
- Performed a trend and year-over-year analysis of Outcome Metrics.

### 5.3.1 Ignition Risk Metric Analysis

Ignition data analysis can provide the most direct measure of electrical corporation wildfire risk for a given year. Other metrics, such as wire down events and unplanned outages, can be instructive as well, as they correlate with wildfire risk because some portion of these events will result in ignitions.

Energy Safety conducted a detailed analysis of PacifiCorp's performance relative to these metrics over the 2015 to 2021 time horizon. That analysis is available in Appendix D. The most salient takeaways from that analysis are provided below.

Energy Safety normalizes ignitions and other ignition risk events (e.g., wire down events) by Red Flag Warning Overhead Circuit Mile Days (RFWOCMD) to depict wildfire risk normalized for the size of fire weather events in an electrical corporation's service territory. Use of this metric allows for comparisons across electrical corporations and enables assessment of performance in 2021 relative to trends from 2015 to 2020.

While PacifiCorp had a lower total count of ignitions compared to 2020, it had a significant increase in normalized ignitions in 2021 compared to 2020 and the average from 2015-2020. When looking at the data in each High Fire Threat District (HFTD) Area, it appears that this increase is largely due to 2021 ignitions in HFTD Tier 3 Areas (as Tier 2 and non-HFTD Areas had similar trends from previous years). These ignitions were attributed to equipment or facility failures in Tier 3 regions and solely came from distribution infrastructure. This came at a time when RFWOCMD declined from both 2020 levels (a decline of 44%) and the preceding six-year (2015-2020) average (a decline of 4.5%).

Although there was a higher rate of normalized ignitions in 2021 compared to the average, it is important to also analyze the consequence of these ignitions. In 2021, PacifiCorp ignitions

resulted in relatively minor outcomes. During 2021, PacifiCorp reported two acres burned, zero structures damaged, and zero fatalities or injuries.

In terms of the drivers of the ignitions, PacifiCorp saw around a 200% increase in both equipment/facility failure and object contact ignitions compared to its six-year average. Ignitions from vegetation contact remained relatively similar to previous years.

In looking at other metrics that also correlate with risk, in 2021 PacifiCorp experienced a reduction in normalized wire down events compared to the previous six-year average, but saw a nearly two-fold increase from 2020 due to vegetation contact events on transmission infrastructure. Similarly, normalized unplanned outages also decreased compared to the six-year average, but increased compared to 2020. The main driver for this increase was vegetation contact events across both the distribution and transmission infrastructure.

Regarding PSPS risk, PacifiCorp had one PSPS event in 2021, compared to one event in 2020, but the normalized PSPS frequency increased by approximately 78%, and normalized PSPS scope increased by over 400%. Normalized PSPS duration increased by 27%, and normalized critical infrastructure impacted by PSPS increased by 11%.

### 5.3.2 Outcome Metric Analysis

As discussed above, while normalized utility-caused ignition levels rose in 2021, there were limited adverse consequences from those ignitions. Only two acres burned from PacifiCorp-ignited wildfires in 2021.

In addition, there were no fatalities or injuries resulting from PacifiCorp-ignited wildfires in 2021. PacifiCorp reported damage to zero structures and the total value of destroyed assets in 2021 was reported as \$0.

### 5.3.3 Discussion

Taken together, the variation in results across the metrics above demonstrates the nuances and complexities attached to the exercise of analyzing an electrical corporation's success at reducing risk on its system in a given year. While overall total ignitions went down in 2021 compared to 2020, the number of ignitions relative to Red Flag Warning days went up. In light of the expected climate change-driven extreme weather events and likely year to year fluctuations, the uneven ignitions outcomes in PacifiCorp territory in 2021, in a changing climate, underscore the importance of effective and timely wildfire mitigation planning and execution.

Energy Safety will continue to monitor ignitions and wildfire consequences over the course of the 2020-2022 WMP cycle compliance reviews.

## 5.4 Criterion 4: Satisfaction of 2021 WMP Goals

This section considers whether PacifiCorp made a good faith attempt to achieve its goals and comply with its WMP.

The goal of the WMP is to reduce the risk of catastrophic wildfires caused by utility infrastructure. Based on a review of the evidence presented in this ARC, Energy Safety finds that PacifiCorp made a good faith effort to comply with its WMP.

PacifiCorp was moderately successful in achieving its initiatives, having met or exceeded 22 of its 32 initiative targets (70%). These initiatives, when taken together, are intended to have the effect of lowering the risk of utility-caused ignitions. As discussed above, in terms of significance of completed initiatives relative to expenditure, PacifiCorp completed targets for seven of the top 10 expenditure initiatives, with the three missed targets representing approximately 56% of the overall 2021 planned expenditure.

While PacifiCorp's missed initiative targets, particularly with respect to covered conductor installation, were substantial, the progress observed on key areas such as weather station installation represented a good faith effort at implementing its objectives.

## 5.5 Criterion 5: Execution, Management, and Documentation

This section considers whether PacifiCorp exhibited issues related to its execution, management, or documentation in the implementation of its WMP.

To accomplish this, Energy Safety undertook a holistic evaluation of all relevant information sources and assessments, including field verifications, for any systemic failings that may have hindered PacifiCorp's ability to reduce the risk of igniting a catastrophic wildfire. Such failings could contribute to increased risk on the system even if WMP targets are achieved.

Energy Safety did not find any systemic issues that hindered PacifiCorp's ability to adequately implement its WMP in 2021.

While PacifiCorp did have data consistency issues in the WMP compliance processes – including numerous and extensive issues with data governance, and poor and inaccurate record-keeping – they did not rise to the level of being considered systemic. Consistency and clarity of information is vital to ensuring that wildfire mitigation efforts can be effectively implemented and that Energy Safety and stakeholders have a clear understanding of PacifiCorp's plans, commitments, and progress. Energy Safety cannot overemphasize the importance of accurate recordkeeping and data management to achieving wildfire risk reduction.



## 6. Conclusion

Overall, PacifiCorp progressed on many of its initiatives during the 2021 compliance period. It met its targets for 23 of the 33 mitigation initiatives (70%) identified in its WMP, including seven of the top 10 initiatives with the largest allocated expenditure.

There are areas where PacifiCorp failed to make significant process and needs to improve. PacifiCorp missed targets for three of its top 10 initiatives with the most allocated expenditure, including critical grid hardening initiatives such as the covered conductor initiative, which alone represented over half of PacifiCorp's planned WMP expenditures in 2021.

PacifiCorp had fewer total ignitions on its system in 2021 compared to 2020, but had more ignitions compared to the recent six-year average. 2021 was a year where PacifiCorp's service territory saw fewer days with higher risk of fire danger (Red Flag Warning Days) when compared to those same time horizons. When comparing the number of ignitions relative to Red Flag Warning Days, PacifiCorp had a significantly higher rate of ignitions in 2021 than in recent years. Although there was a higher relative rate of ignitions, the consequence of those ignitions resulted in relatively minor overall outcomes. During 2021, PacifiCorp reported reductions in acreage burned (two acres total for 2021), no critical infrastructure damaged, and no fatalities or injuries.

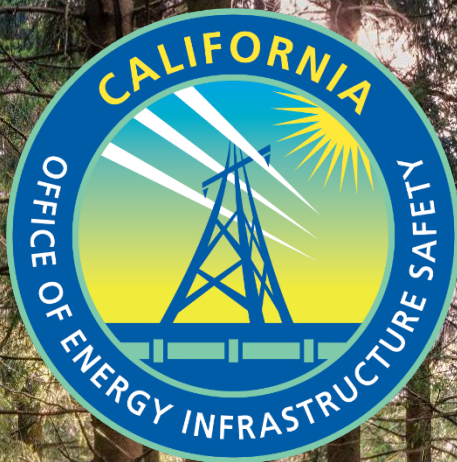
PacifiCorp had one Public Safety Power Shutoff event in 2021, which was the same number of events as in 2020. However, the normalized impact of the single PSPS event in 2021 increased relative to 2020 due to the reduction in Red Flag Warning Days from 2020 to 2021.

In light of the significant failure to achieve its covered conductor targets, among other initiatives, PacifiCorp was largely unsuccessful in executing an actionable and adaptive plan for wildfire risk mitigation. There continue to be areas for improvement and continued learning, including ensuring that PacifiCorp is consistent in its documentation and reporting of compliance with its WMP.

Energy Safety will continue to monitor PacifiCorp's implementation of its ongoing wildfire mitigation activities and push PacifiCorp to improve its ability to ultimately achieve the elimination of utility-caused catastrophic wildfires in California.

**DATA DRIVEN**  
**FORWARD-THINKING**  
**INNOVATIVE**  
**SAFETY FOCUSED**





# APPENDICES

## TABLE OF CONTENTS

1. Appendix A.....	1
1.1 EC ARC.....	1
2. Appendix B.....	6
3. Appendix C.....	8
3.1 Initiative Performance.....	8
4. Appendix D .....	26
4.1 Ignition Risk and Outcomes Metrics .....	26

## LIST OF FIGURES

Figure 1: Variances in Extreme Fire Weather Across PacifiCorp Territory from 2015-2021 by HFTD location .....	27
Figure 2: PacifiCorp Ignitions from 2015-2021 Normalized by Ignitions in HFTD Tiers/ Total RFWOCMD.....	28
Figure 3: PacifiCorp Distribution Ignitions in Tier 3 HFTD Areas from 2015-2020 Normalized by RFWOCMD in Tier 3 Only Broken out by Risk Driver .....	30
Figure 4: PacifiCorp Distribution Ignitions in Tier 2 HFTD Areas from 2015-2021 Normalized by RFWOCMD in Tier 2 Only Broken out by Risk Driver .....	31
Figure 5: PacifiCorp Transmission Ignitions in Tier 2 HFTD Areas from 2015-2021 Normalized by RFWOCMD Tier 2 Only Broken out by Risk Driver.....	32
Figure 6: PacifiCorp Total Wire Down Events from 2015-2021 Normalized by RFWOCMD .....	33
Figure 7: Outages from 2015-2021 Normalized by RFWOCMD .....	34
Figure 8: Outages from Vegetation Contacts for 2015-2020 Normalized by RFWOCMD .....	35
Figure 9: Normalized Frequency of PSPS Events (2015-2021).....	36
Figure 10: Normalized Scope of PSPS Events (2015-2021).....	37
Figure 11: Normalized Duration of PSPS Events.....	38
Figure 12: Normalized Critical Infrastructure Outage Customer-Hours due to PSPS (2015-2021) .....	39

**LIST OF TABLES**

Table 1: PacifiCorp’s Planned Versus Actual Expenditure by Year (in thousand \$s) ..... 2

Table 2: Comparison of PacifiCorp’s 2021 WMP Planned Expenditure vs. 2021 EC ARC Planned Expenditure ..... 3

Table 3: Energy Safety’s Findings from PacifiCorp’s 2021 SVM Audit Report of WMP Vegetation Management Initiatives ..... 6

Table 4: PacifiCorp’s Reported Number of 2021 WMP Update Initiatives with Quantitative and Qualitative Targets..... 8

Table 5: Initiatives with only Quantitative Targets as Identified in PacifiCorp’s 2021 WMP..... 10

Table 6: Initiatives with only Qualitative Targets as Identified in PacifiCorp’s 2021 WMP ..... 17

Table 7: Initiatives with Quantitative and Qualitative Targets ..... 21

Table 8: Energy Safety's Analysis of PacifiCorp’s 2021 WMP Grid Design and System Hardening Initiatives ..... 23

Table 9: Energy Safety's Analysis of PacifiCorp's 2021 WMP Update Asset Management and Inspections Initiatives ..... 25

Table 10: PacifiCorp Count of Utility Related Ignitions (2015-2021) ..... 29

Table 11: PacifiCorp Wire Down Events (2015-2021) ..... 33

Table 12: PacifiCorp Count of Outages (2015-2021) ..... 34

Table 13: PacifiCorp Outcome Metrics Observations ..... 40

# 1. Appendix A

## 1.1 EC ARC

PacifiCorp timely submitted its EC ARC on March 31, 2021. PacifiCorp's EC ARC did not include the five components required by Energy Safety. The EC ARC did not report an analysis of planned vs. actual WMP Update initiative expenditure, assessment of PSPS Impacts, or assessment of defects and corrective actions identified by Energy Safety. Notwithstanding these omissions, the subsections below attempt to summarize relevant portions of PacifiCorp's EC ARC.

### 1.1.1 Achievement of Risk Reduction

In its EC ARC, each electrical corporation is required to provide an assessment of whether the electrical corporation achieved its risk reduction intent by implementing all of its approved WMP Update initiatives, i.e., the degree to which initiative activities have reduced ignition probabilities. If the electrical corporation failed to achieve the intended risk reduction, it must provide a detailed explanation of why and a reference to where associated corrective actions are incorporated into its most recently submitted WMP.

PacifiCorp did not determine whether its intended risk reduction was met by implementing all approved WMP initiatives. PacifiCorp's 2021 EC ARC provided a general progress update on its overall progress towards risk reduction but did not state conclusions about whether it met or missed specific targets at the individual initiative or category levels. Instead, PacifiCorp's conclusion included generalized statements around wildfire risk reduction, including:

- Asserting that wildfire risk reduction is achieved through cumulative implementation of all WMP initiatives, and providing examples of how WMP initiative implementation reduces risk (but not actually discussing how the specific activities undertaken by PacifiCorp reduced risk).<sup>1</sup>
- PacifiCorp stated that asset inspections help identify and accelerate condition corrections and prevent equipment-related risk events, while implementation of covered conductor reduces the risk of incident contact.<sup>2</sup> PacifiCorp reported that these initiatives all work together to reduce wildfire risk but did not specify whether it believed its own activities reduced overall risk for the period in question.

---

<sup>1</sup> PacifiCorp, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 3. [Online.] Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52232&shareable=true>.

<sup>2</sup> PacifiCorp, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Mar. 31, 2022. p. 3. [Online.] Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52232&shareable=true>.

- PacificCorp stated that, while certain short-term initiatives such as asset inspections have been implemented throughout its HFTD areas, certain components of the long-term grid hardening plans have yet to be completed.<sup>3</sup>
- PacificCorp stated that it made “material” progress in 2021 through the implementation of WMP objectives. For instance, PacificCorp reported that 20 line-miles<sup>4</sup> of covered conductor were installed. By progressing these initiatives, PacificCorp asserted that it contributed to future risk reduction.

### 1.1.2 Planned vs Actual WMP Update Initiative Expenditures

In its EC ARC, each electrical corporation is required to provide descriptions of all WMP initiative planned expenditure versus WMP initiative actual expenditure and an explanation of any differences between the planned and actual expenditure.

PacifiCorp reported the following regarding planned vs actual WMP Update expenditure:

*Table 1: PacifiCorp’s Planned Versus Actual Expenditure by Year (in thousand \$s)*

Year	Planned Cost (\$K)	Actual Cost (\$K)	Difference (\$K)
2020 <sup>5</sup>	\$24,708	\$18,202	(\$6,506)
2021 <sup>6</sup>	\$28,232 (per WMP) \$33,375 (per EC ARC) <sup>7</sup>	\$33,098	\$4,866 vs. WMP (\$227) vs. EC ARC <sup>8</sup>

As identified in Table 1, PacificCorp reports that it expended approximately \$227,000 less than the amount asserted as planned in its EC ARC. Compared to the amount asserted as planned

<sup>3</sup> PacificCorp, “2021 Wildfire Mitigation Plan Annual Report on Compliance,” Mar. 31, 2022. p. 4. [Online.] Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52232&shareable=true>.

<sup>4</sup> Out of the 81 line-miles committed to in PacificCorp’s 2021 Q4 QIU.

<sup>5</sup> PacificCorp, “2021 Wildfire Mitigation Plan Update,” Mar. 5, 2021. p. 23. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificcorp\\_2021\\_wmp.pdf](https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificcorp_2021_wmp.pdf).

<sup>6</sup> PacificCorp, “2021 Wildfire Mitigation Plan Annual Report on Compliance,” Mar. 31, 2022. p. 10. [Online.] Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52232&shareable=true>.

<sup>7</sup> PacificCorp’s planned expenditure reported in its 2021 EC ARC and reports issued thereafter contain several inconsistencies from planned expenditure in the approved 2021 WMP Update. Planned expenditure per the 2021 WMP Update, after adjusting for various errors as identified by Energy Safety, was \$28,182,000. An additional \$50,000 of expenditure were approved via a November 21, 2021 change order, increasing the total planned expenditure to \$28,232,000. The variance of planned expenditure reported per the EC ARC of \$33,375,000 and the 2021 WMP Update planned expenditure is approximately \$5,143,000 and appears to be caused by inclusion of several change orders which were not approved by Energy Safety for the 2021 WMP Update cycle.

<sup>8</sup> The variance in planned expenditure based on planned expenditure reported in the 2021 WMP Update and approved change orders, as discussed above, is an overspend of \$4,866,000.

in its WMP, PacifiCorp over expended by \$4,866,000. In its 2021 EC ARC, PacifiCorp failed to provide the required planned versus actual WMP expenditure amounts by initiative, as required by Energy Safety per Section 2 of the 2021 WMP Compliance Operational Protocols. Under that section, PacifiCorp was to provide descriptions of all planned WMP initiative expenditure vs actual WMP initiative expenditure and an explanation of any differentials between planned and actual expenditure.

PacifiCorp did, however, opt to report expenditure metrics by major WMP category. Based on PacifiCorp's discussion of planned vs. actual expenditure by major category, the following themes were noted:

- Increased expenditures were driven by a Quarter 3 (Q3) PSPS event, which resulted in PacifiCorp allocating additional resources for monitoring electric lines. As this event was not expected, it was not budgeted for in the 2021 WMP Update.
- More inspection work was completed than expected in 2021, resulting in additional costs.

Energy Safety finds that amounts reported in PacifiCorp's 2021 EC ARC were not consistent with the planned expenditure reported in PacifiCorp's 2021 WMP Update. Table 2 below provides a comparison of planned expenditure between the 2021 WMP Update, amended for one approved change order, and the planned expenditure reported by PacifiCorp in its EC ARC.

*Table 2: Comparison of PacifiCorp's 2021 WMP Planned Expenditure vs. 2021 EC ARC Planned Expenditure*

<b>WMP Category</b>	<b>2021 Planned Expenditure (\$K) (WMP)<sup>9</sup></b>	<b>2021 Planned Expenditure (\$K) (EC ARC)</b>	<b>2021 Actual Expenditure (\$K) (EC ARC)</b>
<b>Risk and Mapping</b>	\$186	\$186	\$188
<b>Situational Awareness</b>	\$233	\$462	\$1,197
<b>Grid Design and System Hardening</b>	\$19,828	\$25,035	\$23,882
<b>Asset Management and Inspections</b>	\$876	\$848	\$919

<sup>9</sup> Refer to Table 1 in Section 3.2 of this ARC for Energy Safety's analysis of errors and variances noted in PacifiCorp's 2021 Planned Expenditure reporting.



WMP Category	2021 Planned Expenditure (\$K) (WMP) <sup>9</sup>	2021 Planned Expenditure (\$K) (EC ARC)	2021 Actual Expenditure (\$K) (EC ARC)
<b>Vegetation Management</b>	\$6,855	\$6,561	\$6,639
<b>Grid Operations</b>	-	-	-
<b>Data Governance</b>	\$181	\$210	\$215
<b>Resource Allocation</b>	-	-	-
<b>Emergency Planning</b>	-	-	-
<b>Stakeholder Cooperation and Community Engagement</b>	\$73	\$73	\$58
<b>Total</b>	<b>\$28,232</b>	<b>\$33,375</b>	<b>\$33,098</b>

There were two areas where PacifiCorp reported expending less than planned, as per the 2021 WMP Update (as opposed to the 2021 EC ARC):

- Vegetation Management – PacifiCorp expended \$216,000 less than planned for these initiatives. Due to the inconsistencies observed in PacifiCorp's reporting of planned expenditure for this initiative, PacifiCorp did not provide an explanation for this under expenditure. Instead, PacifiCorp discussed having spent 1% over plan due to higher costs.
- Stakeholder Cooperation and Community Engagement – PacifiCorp tracked expending \$15,000 less than planned for these initiatives. PacifiCorp noted that this was driven by a lack of a separate expenditure tracking mechanism for certain community engagement programs, which resulted in expenditure being tracked elsewhere. PacifiCorp reports to have still met its targets and obligations within this category despite the expenditure tracking issues. PacifiCorp noted it plans to correct expenditure accounting for all community engagement programs in 2022.

When considering PacifiCorp's updated 2021 planned expenditure as reported in its 2021 EC ARC, there was one area where PacifiCorp reported the most significant under expenditure:

- Grid Design and System Hardening – PacifiCorp reported expending \$1.2 million less than planned (as per the EC ARC) for these initiatives, although when compared to the estimate in the 2021 WMP Update, the expenditure was \$4.1 million more than planned. PacifiCorp reported that the primary reason for the under expenditure (when compared to the EC ARC) was its covered conductor initiative, for which original

planned expenditure of \$15 million was decreased to \$10.5 million via its unapproved November 1, 2021 change order request. PacifiCorp states that 20 of a planned 25 line-miles were constructed in 2021—however, the 25 line-miles target is not consistent with the actual target established in the 2021 WMP Update and Q4 QIU of 81 line-miles.

## 2. Appendix B

### 2.1.1 Substantial Vegetation Management Audit

On March 26, 2024, Energy Safety issued its SVM Audit for PacifiCorp. In the SVM Audit, Energy Safety assessed whether PacifiCorp met its quantitative commitments and verifiable statements in its 2021 WMP Update related to vegetation management. To perform this assessment, Energy Safety reviewed available information and, where necessary, requested additional documentation from PacifiCorp.

On May 14, 2024, Energy Safety issued its SVM Audit Report finding that PacifiCorp substantially complied with the substantial portion of the vegetation management requirements in its 2021 WMP Update, as detailed in Table 3 below.

*Table 3: Energy Safety's Findings from PacifiCorp's 2021 SVM Audit Report of WMP Vegetation Management Initiatives*

2021 WMP Update Initiative Number	2012 WMP Update Initiative Name	Determination
7.3.5.1	Additional Efforts to Manage Community and Environmental Impacts	Performed all required work
7.3.5.2	Detailed Inspections of Vegetation Around Distribution Electric Lines and Equipment	<b>Sufficient Corrective Action Response</b>
7.3.5.3	Detailed Inspections of Vegetation Around Distribution Electric Lines and Equipment	Performed all required work
7.3.5.4	Emergency Response Vegetation Management Due to Red Flag Warning or Other Urgent Conditions	Performed all required work
7.3.5.5	Fuel Management and Reduction of "Slash" from VM Activities	<b>Sufficient Corrective Action Response</b>
7.3.5.6	Improvement of Inspections	Performed all required work

2021 WMP Update Initiative Number	2012 WMP Update Initiative Name	Determination
7.3.5.7	LiDAR Inspections of Vegetation Around Distribution Electric Lines and Equipment	Performed all required work
7.3.5.8	LiDAR Inspections of Vegetation Around Transmission Electric Lines and Equipment	Performed all required work
7.3.5.11	Patrol Inspections of Vegetation Around Distribution Electric Lines and Equipment	Performed all required work
7.3.5.12	Patrol Inspections of Vegetation Around Transmission Electric Lines and Equipment	Performed all required work
7.3.5.13	Quality Assurance/Quality Control of Inspections	Performed all required work
7.3.5.14	Recruiting and Training of Vegetation Management Personnel	Performed all required work
7.3.5.15	Remediation of At-Risk Species	Performed all required work
7.3.5.16	Removal and Remediation of Trees with Strike Potential to Electric Lines and Equipment	Performed all required work
7.3.5.17	Substation Inspections	Performed all required work
7.3.5.18	Substation Vegetation Management	Performed all required work
7.3.5.19	Vegetation Inventory System	Performed all required work
7.3.5.20	Vegetation Management to Achieve Clearances Around Electric Lines and Equipment	Performed all required work

## 3. Appendix C

### 3.1 Initiative Performance

Energy Safety assessed whether PacifiCorp achieved its 2021 WMP Update qualitative and quantitative commitments through multiple analyses and information sources.

Energy Safety verified compliance with qualitative and quantitative commitments within PacifiCorp's 2021 WMP Update for its System Hardening, Asset Management and Inspections, and Vegetation Management initiatives. For each electrical corporation, the initiatives for compliance verification comprised >60% of the total WMP Update Proposed Expenditures.

Energy Safety also analyzed PacifiCorp's Q4 2021 QIU submission from March 31, 2021, and PacifiCorp's EC ARC to assess whether PacifiCorp achieved its 2021 WMP Update qualitative and quantitative initiative commitments.

#### 3.1.1 2021 Quarterly Reporting Initiative Performance Analysis

PacifiCorp submitted three of its 2021 QIUs. The QIUs reported progress on only 29 initiatives (as opposed to 32 initiatives outlined in the 2021 WMP Update), as shown in Table 4 below. Of the 29 total WMP initiatives reported in PacifiCorp's QIU, 25 contained quantitative targets, one contained qualitative targets, and three contained both quantitative and qualitative targets. A prevalent issue observed with PacifiCorp's QIU reporting was an overall lack of consistency in reporting, particularly when evaluated against its 2021 WMP Update, as well as its EC ARC.

*Table 4: PacifiCorp's Reported Number of 2021 WMP Update Initiatives with Quantitative and Qualitative Targets*

PacifiCorp's 2021 WMP Update Initiatives (QIU data)	Numbers
Initiatives with Quantitative Targets	25
Initiatives with Qualitative Targets	1
Initiatives with Quantitative and Qualitative Targets	3
<b>Total Initiatives</b>	<b>29</b>

### 3.1.2 Initiative Performance Results

Because of reporting inconsistencies between PacifiCorp's 2021 WMP and other documents (such as the QIU), it was difficult for Energy Safety to analyze PacifiCorp's initiative performance.

For example, PacifiCorp's 2021 WMP Update included a total of 32 initiatives allocated across seven of the 10 initiative categories, but only 29 initiatives were tracked in its 2021 Q4 QIU. Of the 29 initiatives reported in the Q4 QIU, only 20 initiatives described targets that were substantially consistent with those established in the 2021 WMP Update. For the other nine initiatives, PacifiCorp either substituted the original targets for planned expenditure (6), or tracked to a different quantity than was established in the 2021 WMP Update (3).

In the following sections, Energy Safety presents the results from the analysis of PacifiCorp's initiative performance by target unit as it was reported in its 2021 WMP Update, noting inconsistencies observed between its QIU, EC ARC reporting, and conclusions from PacifiCorp's 2021 Substantial Vegetation Management Audit and Report. In contrast to the QIU assertions, Energy Safety's analysis shows that there were 32 total initiatives to consider: 20 quantitative, 10 qualitative, and two that had a mixture of quantitative and qualitative targets.

#### Results for Initiatives with Quantitative Targets

Energy Safety identified PacifiCorp's initiatives with quantitative targets as originally described in PacifiCorp's 2021 WMP, and relied on PacifiCorp's 2021 Q4 QIU to evaluate PacifiCorp's reporting over its initiative performance.

PacifiCorp reported that it either met, substantially met, or exceeded the targets for 16 of 20 initiatives (80%) with quantitative targets. For two of the 20 initiatives (10%), PacifiCorp failed to meet its narratives, actions, and/or targets as described in its WMP, and its average progress toward its targets in these cases was 25%. Additionally, due to reporting inconsistencies and insufficient reporting, there were two of 20 initiatives (10%) where Energy Safety was unable to draw a conclusion.

Of the 16 quantitative initiatives where PacifiCorp met its targets, six were within 95% of the target. For the purposes of this compliance assessment, Energy Safety considers those six initiatives substantively met. This applies to the following six initiatives:

1. Crossarm maintenance, repair, and replacement (7.3.3.5), 99% complete
2. Detailed inspections of overhead distribution electric lines and equipment (7.3.4.1), 99% complete
3. Patrol inspections of distribution electric lines and equipment (7.3.4.11), 99% complete
4. Substation inspections (7.3.4.15), 99% complete

5. Detailed inspections of vegetation around distribution electric lines and equipment (7.3.5.2)<sup>10</sup>, 99% complete
6. Quality assurance / quality control (QA/QC) of inspections (7.3.5.13), 95% complete

Table 5 below compares PacifiCorp's WMP identified performance against targets for all quantitative targets to actual reported progress in the QIU and EC ARC. As noted previously, even though PacifiCorp reported that it met all of its quantitative targets, Energy Safety concluded otherwise. The following table is included to reflect how PacifiCorp asserted that it met its quantitative targets. Bold target values represent the two initiatives where Energy Safety could conclude that a target was not substantially met. For the two initiatives where Energy Safety could not conclude whether a target was met, footnotes are used to identify them.

*Table 5: Initiatives with only Quantitative Targets as Identified in PacifiCorp's 2021 WMP*

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
<b>7.3.2.1</b>	Weather Station Installation	Stations	<b>21<sup>11</sup></b>	21	20

<sup>10</sup> The 2021 SVM Audit of PacifiCorp published by Energy Safety on March 26, 2024 identified this initiative as one where PacifiCorp did not perform all required work. Because PacifiCorp completed 99% of the targeted work, this ARC considers the target substantially met.

<sup>11</sup> Energy Safety found various inconsistencies in PacifiCorp's reporting of this target, which were further complicated by a change order submitted (and approved) in November 2021. In its WMP narrative (Section 7.3.2.1, page 125), PacifiCorp stated that it intended to complete stations that were not completed in 2020, plus 12 additional stations in 2021. Based on PacifiCorp's 2020 reporting, 2 out of 10 stations were completed in 2020, therefore 8 remained to be completed in 2021 for a total of 20 stations in 2021. On November 21, 2021, a change order was approved which added 1 more station to the scope, increasing the overall target to 21 stations. By contrast, Table 5.43-5-1 of the 2021 WMP (page 98) stated a target of 22 stations. Energy Safety considered all context available via the narratives included in PacifiCorp's WMP Objectives and determined based on context supplied that the intended WMP target was likely 20 stations, which was then amended to 21 via the change order.

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.3.2	Circuit Breaker Maintenance & Replacement <sup>12</sup>	Breakers <sup>13</sup>	137	Not Reported <sup>14</sup>	Not Reported
7.3.3.3	<b>Covered Conductor Installation</b>	<b>Line-Miles</b>	<b>81<sup>15</sup></b>	<b>20</b>	<b>20</b>
7.3.3.5	Standard Crossarm Replacement	Crossarms Replaced	Cross Arms Replaced: 136 <sup>16</sup>	Not Reported <sup>17</sup>	Not Reported

<sup>12</sup> Energy Safety could not conclude whether the quantitative target for this initiative was met.

<sup>13</sup> Target units were not explicitly discussed in PacifiCorp's 2021 WMP narrative or Table 5.43-5-1, but PacifiCorp often made references to Table 12 of the Q4 2020 QDR attachment that was submitted with the WMP. Per Table 12, the stated target was 137 breakers. PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2020 (Table 12)," Feb. 18, 2021. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp\\_q4\\_2020\\_qdr.xlsx](https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp_q4_2020_qdr.xlsx).

<sup>14</sup> PacifiCorp's Q4 2021 QIU reports an inconsistent target of \$432,000 in planned expenditure with progress of \$306,851. This is not considered a target as it does not effectively support whether or not all intended breakers were maintained and/or replaced. See PacifiCorp, "Quarterly Initiative Update - Q4 2021 (Initiatives)," Feb. 1, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51981&shareable=true>.

<sup>15</sup> The 2021 WMP Update actually specified a target of 85.2-line miles per Table 5.43-5-1. In the narrative, however, PacifiCorp referred readers to the Table 12 Q4 2020 QDR attachment included with the WMP submission, which stated a target of 81 line-miles. The target of 81 line-miles is adopted by this report as the true quantitative target for this initiative.

<sup>16</sup> Target units were not explicitly discussed in PacifiCorp's 2021 WMP narrative or Table 5.43-5-1, but PacifiCorp often made references to Table 12 of the Q4 2020 QDR attachment that was submitted with the WMP. Per Table 12, the stated target was 136 cross arms replaced. PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2020 (Table 12)," Feb. 18, 2021. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp\\_q4\\_2020\\_qdr.xlsx](https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp_q4_2020_qdr.xlsx).

<sup>17</sup> PacifiCorp's Q4 2021 QIU reports an inconsistent target of \$272,000 in planned expenditure with progress of \$685,558, which does not effectively support whether or not all crossarms were replaced. However, based on documentation provided by PacifiCorp via a data request (Data Request 155), Energy Safety was able to observe documentation containing order material descriptions, material issue dates, partner object names, and total cross arms replaced in tabular format. Per the tabular document, a total of 135 cross arms were replaced. Based on information reviewed via the data request, Energy Safety finds PacifiCorp substantially compliant with this initiative. PacifiCorp, "Quarterly Initiative Update - Q4 2021 (Initiatives)," Feb. 1, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51981&shareable=true>.



Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.3.6	Targeted Pole Replacement	Poles	128	87 <sup>18, 19</sup>	Not Reported
7.3.3.9	Installation of System Automation Equipment	Projects	27	31	Not Reported
7.3.3.12	<b>Small Diameter Conductor Replacement</b>	<b>Line-Miles</b>	<b>3.78</b>	<b>1</b>	<b>Not Reported</b>
7.3.4.1	Standard Distribution Detailed Inspections	Inspections <sup>20</sup>	9,213	9,157	Not Reported

<sup>18</sup> PacifiCorp submitted a change order to increase the 2021 target, but it was not approved. PacifiCorp, "2021 Wildfire Mitigation Plan Update – Change Order Report," Nov. 1, 2021. p. 14. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51848&shareable=true>.

<sup>19</sup> As discussed in subsection 3.1.3, despite having reported only 87 poles completed, Energy Safety observed additional information through a Data Request 155 that indicates 263 poles were replaced, indicating this target was met.

<sup>20</sup> Target units were not explicitly discussed in PacifiCorp's 2021 WMP narrative or Table 5.43-5-1. Table 5.43-5-1 of the 2021 WMP Update states that all "Standard Inspections" have a projected target of 3,400 line-miles, which could be presumed to include this initiative, but insufficient context exists to conclude. However, PacifiCorp often made references to Table 12 of the Q4 2020 QDR attachment that was submitted with the WMP. Per Table 12, the stated target was 9,213 unspecified units, which Energy Safety assumed to be inspections given the nature of the underlying initiative. By contrast, PacifiCorp's Q4 2021 QIU reports a target unit of "Facilities." Energy Safety considers these to be substantially the same but makes note of pervasive reporting inconsistencies.

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.4.2	Standard Transmission Detailed Inspections	Inspections <sup>21</sup>	666 <sup>22</sup>	1,408	Not Reported
7.3.4.5	Enhanced Inspections (Infrared Inspections)	Line-Miles	700	706	Not Reported
7.3.4.6	Standard Intrusive Pole Inspections	Inspections <sup>23</sup>	2,688	4,632	Not Reported

<sup>21</sup> Target units were not explicitly discussed in PacifiCorp's 2021 WMP narrative or Table 5.43-5-1. Table 5.43-5-1 of the 2021 WMP Update states that all "Standard Inspections" have a projected target of 3,400 line-miles, which could be presumed to include this initiative, but insufficient context exists to conclude. However, PacifiCorp often made references to Table 12 of the Q4 2020 QDR attachment that was submitted with the WMP. Per Table 12, the stated target was 666 unspecified units, which Energy Safety assumed to be inspections given the nature of the underlying initiative. By contrast, PacifiCorp's Q4 2021 QIU reports a target unit of "Facilities." Energy Safety considers these to be substantially the same but makes note of pervasive reporting inconsistencies.

<sup>22</sup> Table 5.43-5-1 of the WMP update states that all "Standard Inspections" have a projected target of 3,400 Line Miles. This is presumed to be one of the various initiatives aggregated in that process. WMP narrative for this initiative did not specify either the target units or the target, and instead referred readers to Table 12 of the Q4 2020 QDR submitted alongside the 2021 WMP Update for more details. Per Table 12, the target is an alternative unit of 666, with no target unit specified in Column R as required by the attachment template when "alternative units" are reported.

<sup>23</sup> Target units were not explicitly discussed in PacifiCorp's 2021 WMP narrative or Table 5.43-5-1. Table 5.43-5-1 of the 2021 WMP Update states that all "Standard Inspections" have a projected target of 3,400 line-miles, which could be presumed to include this initiative, but insufficient context exists to conclude. However, PacifiCorp often made references to Table 12 of the Q4 2020 QDR attachment that was submitted with the WMP. Per Table 12, the stated target was 2,688 unspecified units, which Energy Safety assumed to be inspections given the nature of the underlying initiative. By contrast, PacifiCorp's Q4 2021 QIU reports a target unit of "Facilities." Energy Safety considers these to be substantially the same but makes note of pervasive reporting inconsistencies.

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.4.11	Standard Distribution Patrol Inspections	Inspections <sup>24</sup>	50,603	50,578	Not Reported
7.3.4.12	Standard Transmission Patrol Inspections	Inspections <sup>25</sup>	98	12,389	Not Reported
7.3.4.14	Quality assurance / quality control of overhead inspections <sup>26</sup>	Audits <sup>27</sup>	11,485	Not Reported <sup>28</sup>	Not Reported

<sup>24</sup> Target units were not explicitly discussed in PacifiCorp's 2021 WMP narrative or Table 5.43-5-1. Table 5.43-5-1 of the 2021 WMP Update states that all "Standard Inspections" have a projected target of 3,400 line-miles, which could be presumed to include this initiative, but insufficient context exists to conclude. However, PacifiCorp often made references to Table 12 of the Q4 2020 QDR attachment that was submitted with the WMP. Per Table 12, the stated target was 50,603 unspecified units, which Energy Safety assumed to be inspections given the nature of the underlying initiative. By contrast, PacifiCorp's Q4 2021 QIU reports a target unit of "Facilities." Energy Safety considers these to be substantially the same but makes note of pervasive reporting inconsistencies.

<sup>25</sup> Target units were not explicitly discussed in PacifiCorp's 2021 WMP narrative or Table 5.43-5-1. Table 5.43-5-1 of the 2021 WMP Update states that all "Standard Inspections" have a projected target of 3,400 line-miles, which could be presumed to include this initiative, but insufficient context exists to conclude. However, PacifiCorp often made references to Table 12 of the Q4 2020 QDR attachment that was submitted with the WMP. Per Table 12, the stated target was 98 unspecified units, which Energy Safety assumed to be inspections given the nature of the underlying initiative. By contrast, PacifiCorp's Q4 2021 QIU reports a target unit of "Facilities." Energy Safety considers these to be substantially the same but makes note of pervasive reporting inconsistencies.

<sup>26</sup> Energy Safety could not conclude whether the quantitative target for this initiative was met.

<sup>27</sup> Target units were not explicitly discussed in PacifiCorp's 2021 WMP narrative or Table 5.43-5-1. However, PacifiCorp often made references to Table 12 of the Q4 2020 QDR attachment that was submitted with the WMP. Per Table 12, the stated target was 11,485 unspecified units, which Energy Safety assumed to be audits given context provided in the WMP narrative and the nature of the underlying initiative.

<sup>28</sup> PacifiCorp's Q4 2021 QIU reports an inconsistent target of \$36,000 in planned expenditure with progress of \$49,615, which does not effectively support whether or not all intended audits were completed.

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.4.15	Substation Inspections	Inspections <sup>29</sup>	444	438	Not Reported
7.3.5.2	Distribution Detailed Inspections of Vegetation	Line-Miles	1,476 <sup>30</sup>	1,376 <sup>31</sup>	Not Reported
7.3.5.3	Transmission Detailed Inspections of Vegetation	Line-Miles	129 <sup>32</sup>	181	Not Reported
7.3.5.11	Augmented Distribution Readiness Patrol	Line-Miles	1,369	1,167 <sup>33</sup>	Not Reported

<sup>29</sup> Target units were not explicitly discussed in PacifiCorp’s 2021 WMP narrative or Table 5.43-5-1. Table 5.43-5-1 of the 2021 WMP states that all "Standard Inspections" have a projected target of 3,400 Line Miles, which could be presumed to include this initiative, but insufficient context exists to conclude. However, PacifiCorp often made references to Table 12 of the Q4 2020 QDR attachment that was submitted with the WMP. Per Table 12, the stated target was 444 unspecified units, which Energy Safety assumed to be inspections given the nature of the underlying initiative. PacifiCorp’s Q4 2021 QIU reports a target unit of “Inspections.”

<sup>30</sup> Energy Safety noted reporting discrepancies between targets reported in the 2021 WMP narrative, which stated a target of “over 1,500,” and Table 12 of the Q4 2020 QDR submitted alongside the 2021 WMP, which stated a target of 1,380 line-miles. PacifiCorp’s Q4 2021 QIU reports a target of 1,380 line-miles. Through Data Request 131, obtained as part of Energy Safety’s SVM Audit, PacifiCorp explained that the original target of over 1,500 line miles was an estimate, which was later refined to 1,476. PacifiCorp, “2021 Wildfire Mitigation Plan Update,” Mar. 5, 2021. p.159. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificorp\\_2021\\_wmp.pdf](https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificorp_2021_wmp.pdf).

<sup>31</sup> Energy Safety determined that the progress reported in PacifiCorp’s QIU was incorrect. Though the progress reported was below PacifiCorp’s stated target, Energy Safety observed evidence via Data Request 131 from Energy Safety’s SVM Audit for PacifiCorp supporting the completion of a total of 1,471 line-miles. Based on the actual progress observed, Energy Safety considers this initiative met given it fell within 5% of its target. Energy Safety, “2021 Substantial Vegetation Management Audit of PacifiCorp,” Mar. 26, 2024. P.16. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56380&shareable=true>.

<sup>32</sup> PacifiCorp’s Q4 QIU reports an inconsistent target of 181 line-miles—however, this does not appear to impact this report’s conclusion given PacifiCorp met or exceeded the 2021 WMP Update target.

<sup>33</sup> According to the Q4 QIU, PacifiCorp completed 1,167 line-miles. Energy Safety analyzed additional data provided via an IE Data Request, where PacifiCorp argued that all targeted 1,369 line-miles were completed, but only 1,167 were completed under this initiative. PacifiCorp explained that the remaining line-miles were inspected later in the year under a different specification/initiative, as the initial inspection for this initiative was scheduled prior to the peak of the fire season. Specific details of the line-miles were supplied by PacifiCorp in tabular format. In addition, Energy Safety’s SVM Audit supports that evidence reviewed was consistent with the completion of work identified in the 2021 WMP Update for this initiative.

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.5.12	Augmented Transmission Readiness Patrol	Line-Miles	348	354	Not Reported
7.3.5.13	Vegetation QA/QC	Line-Miles	1,717 <sup>34</sup>	1,383 <sup>35</sup>	Not Reported

### Results for Initiatives with Qualitative Targets

Energy Safety identified PacifiCorp's initiatives with qualitative targets as originally described within PacifiCorp's 2021 WMP Update and relied on PacifiCorp's 2021 Q4 QIU to evaluate PacifiCorp's reporting on its initiative performance.

In its 2021 Q4 QIU, PacifiCorp reported that it had completed its only initiative with solely qualitative targets:

- Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions, as needed (7.3.2.5).

In contrast, Energy Safety identified 10 initiatives with exclusively qualitative targets as per the 2021 WMP Update, three of which had been entirely omitted from PacifiCorp's QIU reporting, but were confirmed as completed in PacifiCorp's 2021 SVM Audit and Report.

<sup>34</sup> The target was not explicitly discussed via the 2021 WMP Update narrative. Instead, the narrative for this initiative notes that, "in 2021, PacifiCorp plans to post-audit all cycle work and all corrective work as a result of patrols conducted prior to height of fire season." Though PacifiCorp did not explicitly refer readers to Table 12 of the Q4 2020 QDR submitted alongside the 2021 WMP Update, Table 12 reports a target of 1,717 line-miles.

<sup>35</sup> According to their Q4 QIU, PacifiCorp completed 1,383 line-miles. According to the IE ARC, the IE could only verify completion of 1,385 miles (IE ARC page 4-5). In response to Data Request 116, PacifiCorp explained that it post audited 1,392 line-miles, and noted that the goal of 1,717 line-miles was impacted by rescheduling efforts which shifted routine maintenance work earlier into the year in lieu of the post audit QA/QCs. However, PacifiCorp noted that for approximately 234 line-miles of routine maintenance, PacifiCorp also conducted post-audits as part of the routine maintenance efforts, and ultimately noted that a total of 1,626 line-miles were audited within the calendar year. PacifiCorp provided documentation showing the 1,626 line-miles of Vegetation QA/QC that were completed as part of this initiative through tabular documentation. Energy Safety finds this initiative substantially compliant since PacifiCorp's inspection efforts were within a 5% margin of the original target but makes note of pervasive recordkeeping issues that should be corrected in future updates. Additionally, Energy Safety's SVM Audit supports that evidence reviewed is consistent with the completion of work related to this initiative.

Energy Safety summarizes the initiatives with exclusively qualitative targets as reported in the 2021 WMP Update in Table 6 below and incorporates an analysis of reporting discrepancies observed between the 2021 WMP Update and the 2021 Q4 QIU.

Bold target values represent the two initiatives where Energy Safety could conclude that a target was not substantially met. For the three initiatives where Energy Safety could not conclude whether a target was met, footnotes are used to identify them.

*Table 6: Initiatives with only Qualitative Targets as Identified in PacifiCorp's 2021 WMP*

Initiative Number	Initiative Name	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
<b>7.3.1.1</b>	Risk Assessment and Mapping (Risk Modeling Platform) <sup>36</sup>	Several areas of future development (target not clearly specified)	Not Reported <sup>37</sup>	PacifiCorp has employed its risk model to assign composite wildfire risk scores based on available data sets, reducing the risk of PSPS.
<b>7.3.2.5<sup>38</sup></b>	Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions (Fire Risk Monitoring - Patrols)	Conduct Procedures for On-Alert Status as Needed <sup>39</sup>	Completed monitoring for elevated risk events and the continuation of its procedures for on-alert status	Personnel monitoring of electric lines and equipment in elevated fire risk conditions program was used to track situational awareness spend.

<sup>36</sup> Energy Safety could not conclude whether the qualitative target for this initiative was met.

<sup>37</sup> PacifiCorp's Q4 2021 QIU reports an inconsistent target of \$186,000 in planned expenditure with progress of \$187,529, which does not effectively support a qualitative conclusion.

<sup>38</sup> This initiative is tracked as 7.3.2.3 in PacifiCorp's 2021 WMP Update but tracked as 7.3.2.5 in PacifiCorp's 2021 Q4 QIU.

<sup>39</sup> The target per PacifiCorp 2021 Q4 QIU is substantially the same, tracking to "Complete monitoring as needed for elevated risk events." However, QIU also tracks a quantitative target based on expenditure.

Initiative Number	Initiative Name	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
			recognition and activation <sup>40</sup>	
<b>7.3.3.7</b>	<b>Expulsion Fuse Replacement</b>	<b>\$50,000 in Planned Expenditure<sup>41</sup></b>	<b>\$0<sup>42</sup></b>	<b>Not Reported</b>
<b>7.3.3.13</b>	<b>Pilot 2: Pole Loading/ LiDAR</b>	<b>Complete scope, plan, and complete corrective action in 2021/2022<sup>43</sup></b>	<b>Progress planned in Q1/Q2 2022 for incorporation into the 2022 WMP Update<sup>44</sup></b>	<b>Not Reported</b>

<sup>40</sup> PacifiCorp’s 2021 Q4 QIU also reported \$801,000 of expenditure. PacifiCorp, “Quarterly Initiative Update - Q4 2021 (Initiatives),” Feb. 1, 2022. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52338&shareable=true>.

<sup>41</sup> The target was not specified in the WMP but was subsequently added to the 2021 WMP cycle plans via a Change Order, which was approved by Energy Safety. PacifiCorp, “2021 Wildfire Mitigation Plan Update – Change Order Report,” Nov. 1, 2021. pp. 17-18. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51848&shareable=true>.

<sup>42</sup> In its November 2021 change order, PacifiCorp was approved by Energy Safety to incorporate initiative 7.3.3.7 with a goal of \$50,000 in expenditure. In its QIU, PacifiCorp reports expenditure of \$0, citing a delayed initiative. PacifiCorp noted that the procurement process was initiated, but it did not take possession until 2022. In its 2021 EC ARC, PacifiCorp noted that it is establishing a different system for tracking expulsion fuse replacements independently and at a more granular level for future WMP cycles.

<sup>43</sup> The target per PacifiCorp 2021 Q4 QIU is substantially the same, tracking to “Develop construction plan; Evaluate effectiveness, expansion, removal, or aggregation with other pole replacement programs through a change order process.” However, QIU also tracks a quantitative target based on expenditure.

<sup>44</sup> PacifiCorp’s 2021 Q4 QIU also reported \$0 of expenditure. While still noting 7.3.3.13 is a pilot program, PacifiCorp failed to dedicate actual spend to this initiative. Additionally, PacifiCorp qualitatively set out to establish a plan as a result of the pilot by the end of the year, and such a plan was not established—instead this plan was delayed for 2022. In conjunction with the qualitative update provided, this indicates the initiative was not completed as planned. PacifiCorp, “Quarterly Initiative Update - Q4 2021 (Initiatives),” Feb. 1, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52338&shareable=true>.

Initiative Number	Initiative Name	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.5.1	Additional efforts to manage community and environmental impacts	Coordinate with Klamath National Forest (KNF) to develop an Operations and Maintenance Plan (O&M)	Not Reported <sup>45</sup>	Not Reported
7.3.5.6	Improvement of inspections	Improvement of data collection system	Not Reported <sup>46</sup>	Not Reported
7.3.5.7	LiDAR inspections of vegetation around distribution and transmission lines and equipment	Improve initial LiDAR results through work with more vendors	Not Reported <sup>47</sup>	Not Reported

<sup>45</sup> PacifiCorp’s 2021 Q4 QIU did not track this initiative and no other updates were provided. However, Energy Safety’s SVM Audit produced evidence that a variety of formal and informal meetings were conducted and that the O&M Plan was developed in 2021. Energy Safety, “2021 Substantial Vegetation Management Audit of PacifiCorp,” Mar. 26, 2024. p. 12. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56380&shareable=true>.

<sup>46</sup> PacifiCorp’s 2021 Q4 QIU did not track this initiative, and no other updates were provided. However, Energy Safety’s SVM Audit produced evidence that various maintenance activities were conducted during the period, and that improvements were made to the data collection system. Energy Safety, “2021 Substantial Vegetation Management Audit of PacifiCorp,” Mar. 26, 2024. p. 24. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56380&shareable=true>.

<sup>47</sup> PacifiCorp’s 2021 Q4 QIU did not track this initiative, and no other updates were provided. However, Energy Safety’s SVM Audit produced evidence that PacifiCorp evaluated LiDAR pilot studies but determined that they did not yield cost effective accuracy. Despite not moving forward with the LiDAR use, sufficient evidence was obtained that the initiative was completed. Energy Safety, “2021 Substantial Vegetation Management Audit of PacifiCorp,” Mar. 26, 2024. pp.25-26. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56380&shareable=true>.



Initiative Number	Initiative Name	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.5.20	Vegetation Cycle Clearing / Pruning / Corrective Work	Implement vegetation standard operating procedures in 2021	Not Reported <sup>48, 49</sup>	Not Reported
7.3.7.1	Data Governance <sup>50</sup>	Develop a Data Governance Plan & Make Progress on Data Mapping	Not Reported <sup>51</sup>	Central repository for data spending was within 2% of plan. No other qualitative updates provided.
7.3.10.1	Multi-Pronged Community Engagement <sup>52</sup>	Address 2020 Survey Findings & Improve Community, Partner, and Agency Engagement	Not Reported <sup>53</sup>	Some community engagement programs were not tracked through a separate spending mechanism. This is to be corrected in 2022.

## Results for Initiatives with Qualitative and Quantitative Targets

<sup>48</sup> PacifiCorp's Q4 2021 QIU reports an inconsistent target of \$6.6 million in planned expenditure with progress of \$6.8 million, which does not effectively support a qualitative conclusion.

<sup>49</sup> Despite the inconsistent target tracked, Energy Safety's SVM Audit produced evidence that PacifiCorp completed work relating to vegetation management activities consistent with its Vegetation standard operating procedure and the WMP. Energy Safety, "2021 Substantial Vegetation Management Audit of PacifiCorp," Mar. 26, 2024. PP.46-47. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56380&shareable=true>.

<sup>50</sup> Energy Safety could not conclude whether the qualitative target for this initiative was met.

<sup>51</sup> PacifiCorp's Q4 2021 QIU reports an inconsistent target of \$181,000 in planned expenditure with progress of \$214,862, which does not effectively support a qualitative conclusion.

<sup>52</sup> Energy Safety could not conclude whether the qualitative target for this initiative was met.

<sup>53</sup> PacifiCorp's Q4 2021 QIU reports an inconsistent target of \$72,948 in planned expenditure with progress of \$57,960, which does not effectively support a qualitative conclusion.

Energy Safety also identified two initiatives with both quantitative and qualitative targets as originally described within PacifiCorp's 2021 WMP Update. Energy Safety relied on PacifiCorp's 2021 Q4 QIU to evaluate PacifiCorp's reporting on its initiative performance.

In its 2021 Q4 QIU, PacifiCorp reported that it had three initiatives with both quantitative and qualitative targets. PacifiCorp reported in its QIU that it had completed the targets for two of three (or 66%) of these initiatives.

By contrast, Energy Safety identified only two initiatives with both qualitative and quantitative targets as per the 2021 WMP Update. Energy Safety finds PacifiCorp completed its targets for one of the two (50%) initiatives.

Energy Safety summarizes the initiatives with both quantitative and qualitative targets as reported in the 2021 WMP in Table 7 below and incorporates an analysis of reporting discrepancies observed between the 2021 WMP Update and the Q4 2021 QIU.

Initiatives with missed quantitative and qualitative targets are depicted in bold.

*Table 7: Initiatives with Quantitative and Qualitative Targets*

Initiative Number	Initiative Name	WMP Quantitative Target	Reported Quantitative Progress in QIU	WMP Qualitative Target	Reported Qualitative Progress in QIU
<b>7.3.2.2</b>	Pilot 1: Distribution Fault Anticipation (DFA)	Two circuits out of Weed substation (5G45 and 5G83) and two circuits out of Lassen substation	Two <sup>54</sup>	Determine additional substation circuits to target based on pilot. <sup>55</sup>	Revising scope and phasing for inclusion in the 2022 WMP Update.

<sup>54</sup> PacifiCorp's pilot program for Distribution Fault Anticipation, contracted with Texas A&M, originally stated the 2021 target as four device installations (per p. 127 of PacifiCorp's 2021 WMP Update). In 2021, PacifiCorp reported the installation of two devices. Within their Q4 QIU, PacifiCorp reported the goal as 22 devices, but later pointed out this was an error carried over from the pilot's original scope as per the IE ARC review (IE ARC, p.31). PacifiCorp communicated scope issues with the original planning of the pilot and changed the overall plan to account for the slower pace. According to their qualitative goal for initiative 7.3.2.2, PacifiCorp planned to assess the progression of the pilot to revisit or revise the scope, which they did in the Q4 QIU. Energy Safety understands that this initiative was one subject to revision and review, and as such finds PacifiCorp compliant for their qualitative assessment.

<sup>55</sup> Target per PacifiCorp 2021 Q4 QIU is substantially the same, tracking to "Review and assess event history of initial installations to determine expansion/phasing of pilot project."

Initiative Number	Initiative Name	WMP Quantitative Target	Reported Quantitative Progress in QIU	WMP Qualitative Target	Reported Qualitative Progress in QIU
		(5G77 and 5G79)			
7.3.5.5	Fuel management and reduction of "slash" from vegetation management activities	3,047 poles cleared	2,872 poles cleared <sup>56</sup>	In 2021, PacifiCorp will continue to seek opportunities to partner with communities and/or agencies to support fuel reduction projects. <sup>57</sup>	Not Reported

### 3.1.3 2021 Grid Design and System Hardening Initiatives Analysis

PacifiCorp’s Grid Design and System Hardening initiatives represented approximately 70% of PacifiCorp’s total planned expenditure for its 2021 WMP Update.<sup>58</sup>

<sup>56</sup> Energy Safety determined that PacifiCorp’s actual progress consisted of 2,872 poles cleared vs. a 3,047 target, which falls below 95% of the goal. Energy Safety’s conclusion that 2,872 poles were cleared is based on information supplied by PacifiCorp in response to Data Request 115, and adjusted to account for the fact that of the 2,948 poles claimed to have been cleared by PacifiCorp, Energy Safety found that they double counted 109 poles for grid 5L87/5L97. This brings the actual total to 2,872.

<sup>57</sup> PacifiCorp did not track or provide updates on the qualitative aspect of this initiative in its 2021 Q4 QIU. However, during Energy Safety’s SVM Audit, Energy Safety reviewed supporting e-mail documentation that showed activity consistent with PacifiCorp’s partnering with communities and/or agencies. Energy Safety, “2021 Substantial Vegetation Management Audit of PacifiCorp,” Mar. 26, 2024. p. 22. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56380&shareable=true>.

<sup>58</sup> PacifiCorp, " Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2020 (Table 12)," Feb. 18, 2021. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp\\_q4\\_2020\\_qdr.xlsx](https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp_q4_2020_qdr.xlsx).

Energy Safety assessed whether PacifiCorp met its qualitative and quantitative targets in its 2021 WMP Update for the five Grid Design and System Hardening (Section 7.3.3)<sup>59</sup> initiatives that appear in the top 10 initiatives for planned expenditure in the 2021 WMP Update.

Energy Safety found that PacifiCorp substantially met its quantitative and qualitative targets for three out of the five Grid Design and System Hardening initiative commitments reviewed, as detailed in Table 8 below.

*Table 8: Energy Safety's Analysis of PacifiCorp's 2021 WMP Grid Design and System Hardening Initiatives*

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.3.2 – Circuit Breaker Maintenance &amp; Replacement</b>	137 breakers	Not Reported <sup>60</sup>	N/A	N/A	Not verified	<b>Unable to conclude if commitment met</b>
<b>7.3.3.3 – Covered Conductor Installation</b>	81 line-miles	20 line-miles	N/A	N/A	Data request	<b>Commitment not met</b>
<b>7.3.3.5 – Crossarm Maintenance Repair and Replacement</b>	136 crossarms	Not Reported <sup>61</sup>	N/A	N/A	Data request	Commitment substantially met <sup>62</sup>

<sup>59</sup> PacifiCorp, “2021 Wildfire Mitigation Plan Update,” Mar. 5, 2021. pp.128-140. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificorp\\_2021\\_wmp.pdf](https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificorp_2021_wmp.pdf).

<sup>60</sup> PacifiCorp's Q4 2021 QIU reports an inconsistent target of \$432,000 in planned expenditure with progress of \$306,851. This is not considered a target as it does not effectively support whether or not all intended breakers were maintained and/or replaced.

<sup>61</sup> PacifiCorp's Q4 2021 QIU reports an inconsistent target of \$272,000 in planned expenditure with progress of \$685,558, which does not effectively support whether or not all crossarms were replaced.

<sup>62</sup> Energy Safety was able to confirm substantial compliance with this target via Data Request 155. PacifiCorp responded to the data request with documentation containing order material descriptions, material issue dates, partner object names, a tabular list with all crossarm replacements. Per the list, a total of 135 crossarms were replaced.

Initiative Number and Name	2021 WMP Update Quantitative Target	2021 Actual Reported	2021 WMP Update Qualitative Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.3.6 – Distribution Pole Replacement and Reinforcement, Including with Composite Poles</b>	Replace / reinforce 51 transmission poles and 77 distribution poles by the end of 2021 (128 total).	87 poles replaced/reinforced <sup>63</sup>	N/A	N/A	Data request	Commitment met <sup>64</sup>
<b>7.3.3.9 – Installation of System Automation Equipment</b>	27	31	N/A	N/A	Data request	Commitment met <sup>65</sup>

<sup>63</sup> PacifiCorp, “Quarterly Initiative Update - Q4 2021 (Initiatives),” Feb. 1, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52338&shareable=true>.

<sup>64</sup> Per the Q4 QIU, PacifiCorp reported that it completed 87 poles vs. a goal of 128. In order to verify that PacifiCorp had replaced and reinforced the transmission and distribution poles stated in its 2021 WMP Update, Energy Safety sent the electric corporation Data Request 155 asking for supporting documentation. PacifiCorp responded to the data request with documentation that included circuit IDs, locations / addresses, quarterly progress, cumulative progress, asset features, utility IDs, segment IDs, change order dates, start dates, end dates, and performance comments. The supporting documentation provided indicated that 263 poles were reinforced in 2021.

<sup>65</sup> In its 2021 WMP Update, PacifiCorp stated that it by the end of 2021 it would install a system hardening wildfire mitigation program that would include 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 effort. In order to verify that PacifiCorp had completed the installation of system automation equipment by the end of 2021, Energy Safety sent PacifiCorp Data Request 155 asking for supporting documentation. PacifiCorp responded to the data request with documentation that included recloser installation forms, protection and control relay equipment memorandum forms, metaclad switchgear circuit breaker installation forms, substation vacuum/SF6 bottle circuit breaker installation forms, relay setting order forms, and work order forms. PacifiCorp also provided a document containing information regarding the installation of system automation equipment which includes circuit IDs, dates of installations, and asset IDs. After examining the documentation provided by PacifiCorp in regard to the installation of system automation equipment, Energy Safety to finds PacifiCorp met the commitment.

### 3.1.4 2021 Asset Management and Inspections Initiatives Analysis

PacifiCorp's Asset Management and Inspections initiatives represented approximately 3% of PacifiCorp's total planned expenditure for its 2021 WMP Update.<sup>66</sup>

Energy Safety assessed whether PacifiCorp met the quantitative target for the single Asset Management and Inspections (Section 7.3.4)<sup>67</sup> initiative that appears in the top 10 initiatives for planned expenditure in the 2021 WMP Update.

Energy Safety found that PacifiCorp substantially met its quantitative target for the single Grid Design and System Hardening initiative commitment reviewed, as detailed in Table 9 below.

*Table 9: Energy Safety's Analysis of PacifiCorp's 2021 WMP Update Asset Management and Inspections Initiatives*

Initiative Number and Name	2021 WMP Update Target	2021 Actual Reported	Method of Verification	Energy Safety Finding
<b>7.3.4.11</b>	50,603 patrol inspections of distribution electric lines and equipment.	50,578 patrol inspections conducted.	Data request	Commitment substantially met <sup>68</sup>

<sup>66</sup> PacifiCorp, " Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2020 (Table 12)," Feb. 18, 2021. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp\\_q4\\_2020\\_qdr.xlsx](https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/pacificcorp_q4_2020_qdr.xlsx).

<sup>67</sup> PacifiCorp, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. pp.140-155. [Online]. Available: [https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificcorp\\_2021\\_wmp.pdf](https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/pacificcorp_2021_wmp.pdf).

<sup>68</sup> As reported in the IE ARC, in response to IE Data Request 7, PacifiCorp provided copies of work orders for a sample of inspections. Based on the IE's review, it obtained reasonable assurance that PacifiCorp completed 50,576 distribution inspections (two less than reported). Although the discrepancy was not explained by PacifiCorp, Energy Safety considers the commitment substantially met given it fell within 95% of target.

## 4. Appendix D

### 4.1 Ignition Risk and Outcomes Metrics

Energy Safety assessed the performance PacifiCorp's infrastructure relative to its wildfire risk, as measured by changes in the occurrence of events that correlate to wildfire risk.

Energy Safety requires electrical corporations to report data, such as ignitions in the HFTD, that help Energy Safety assess whether an electrical corporation reduced its wildfire risk while also reducing its reliance on PSPS. In 2021, Energy Safety evaluated each electrical corporation's performance metric<sup>69</sup> data by conducting the following analyses:

- 1) For Ignition Risk Metrics:
  - a. A trend analysis of performance metrics from 2015-2021.
  - b. A year-over-year analysis of performance metrics from 2020-2021.
- 2) For Outcome Metrics:
  - a. A trend analysis of performance metrics from 2015-2021.
  - b. A year-over-year analysis of performance metrics from 2020-2021.

For this analysis, Energy Safety relied on data reported in PacifiCorp's 2021 WMP Update and its March 18, 2022, QDR submission.

#### 4.1.1 Ignition Risk Metrics

Energy Safety reviewed the ignition risk metrics PacifiCorp reported in its March 18, 2022, QDR submission,<sup>70</sup> including:

1. **Ignitions** – incidents in which electrical corporation infrastructure was involved
2. **Wire down events** – incidents in which overhead electrical lines fall to the ground or land on objects
3. **Vegetation-caused outages** – outages experienced in which the cause was determined to be vegetation contact with electrical lines
4. **Unplanned outages** – all unplanned outages experienced

---

<sup>69</sup> Progress Metrics are defined as Measurements that track how much Electrical Corporation wildfire mitigation activity has changed the conditions of Electrical Corporation wildfire risk exposure or Electrical Corporation ability to manage wildfire risk exposure, in terms of leading indicators of ignition probability and wildfire consequences. California Public Utilities Commission, "Resolution WSD-011 Attachment 2.2: 2021 Wildfire Mitigation Plan Guidelines Template (Section 6)," Oct. 13, 2021. p. 12, 32. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/attachment-2.2-to-wsd-011-2021-wmp-guidelines-template.pdf>.

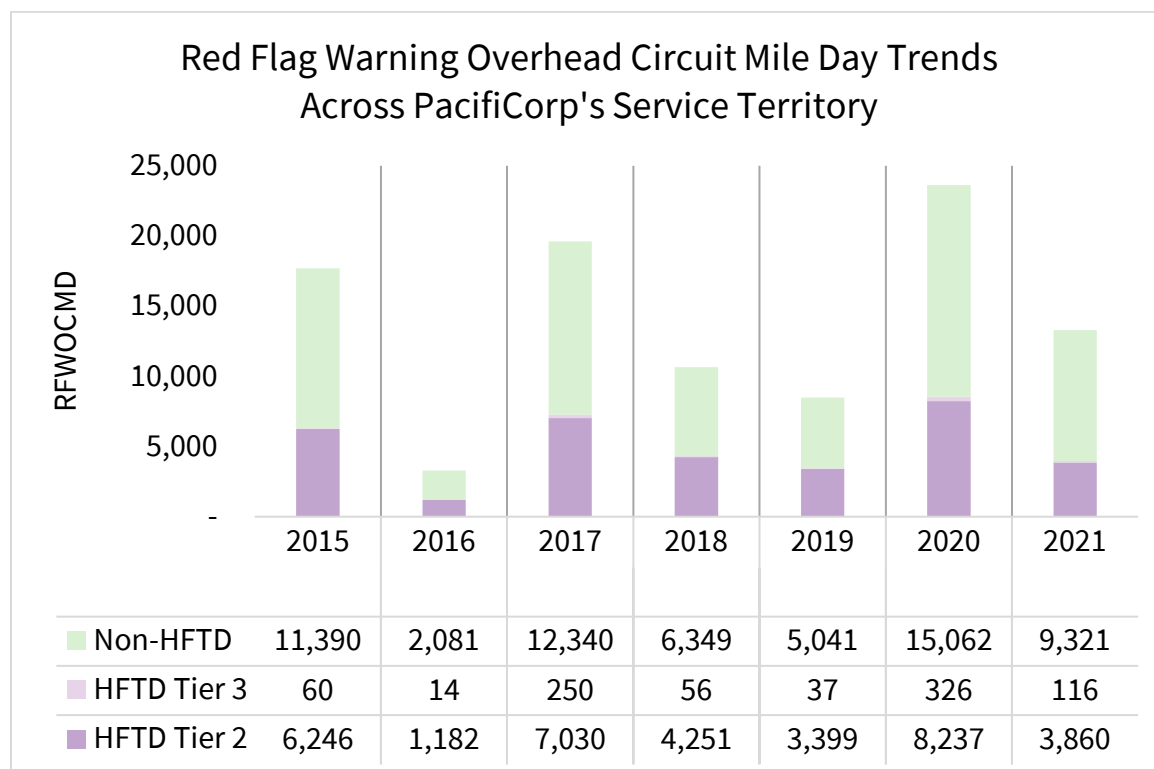
<sup>70</sup> PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.1, Table 7.2)," Feb. 28 and Mar. 18, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52336&shareable=true>.

For applicable metrics, Energy Safety normalized each electrical corporation's data using the unit "Red Flag Warning Overhead Circuit Mile Days" (RFWOCMD).

Energy Safety uses RFWOCMD for overhead assets to present wildfire risk normalized to the number of fire weather events in an electrical corporation's service territory. Use of this metric allows for comparisons across reporting years of varying weather conditions and enables assessment of performance in 2021 relative to previous trends from 2015 through 2020.

As shown in Figure 1 below, PacifiCorp's territory saw a decline in RFWOCMD from 2020 to 2021.

*Figure 1: Variances in Extreme Fire Weather Across PacifiCorp Territory from 2015-2021 by HFTD location*



#### 4.1.2 Ignition Data Analysis

PacifiCorp had fewer total ignitions on its system in 2021 compared to 2020, but had more ignitions when compared to the six-year average from 2015-2020. At the same time, 2021 was a year where PacifiCorp's service territory saw fewer days with higher risk of fire danger (as measured by Red Flag Warning Days) when compared to the average for those same time horizons, though overall Red Flag Warning Days across years have fluctuated year to year.



In comparing the two years with similar numbers of Red Flag Warning Days (2018 and 2021) Tier 3 HFTD normalized ignitions in 2021 were significantly higher, and Tier 2 and non-HFTD normalized ignitions increased minimally.

Below, Figure 2 shows the ignitions in PacifiCorp’s service territory normalized by the total RFWOCMD for each year and delineated by location (i.e., Tier 3 HFTD areas, Tier 2 HFTD areas, and non-HFTD areas). Figure 2 depicts an increase in normalized ignitions in 2021, primarily within Tier 3 HFTD areas.

Figure 2: PacifiCorp Ignitions from 2015-2021 Normalized by Ignitions in HFTD Tiers/ Total RFWOCMD

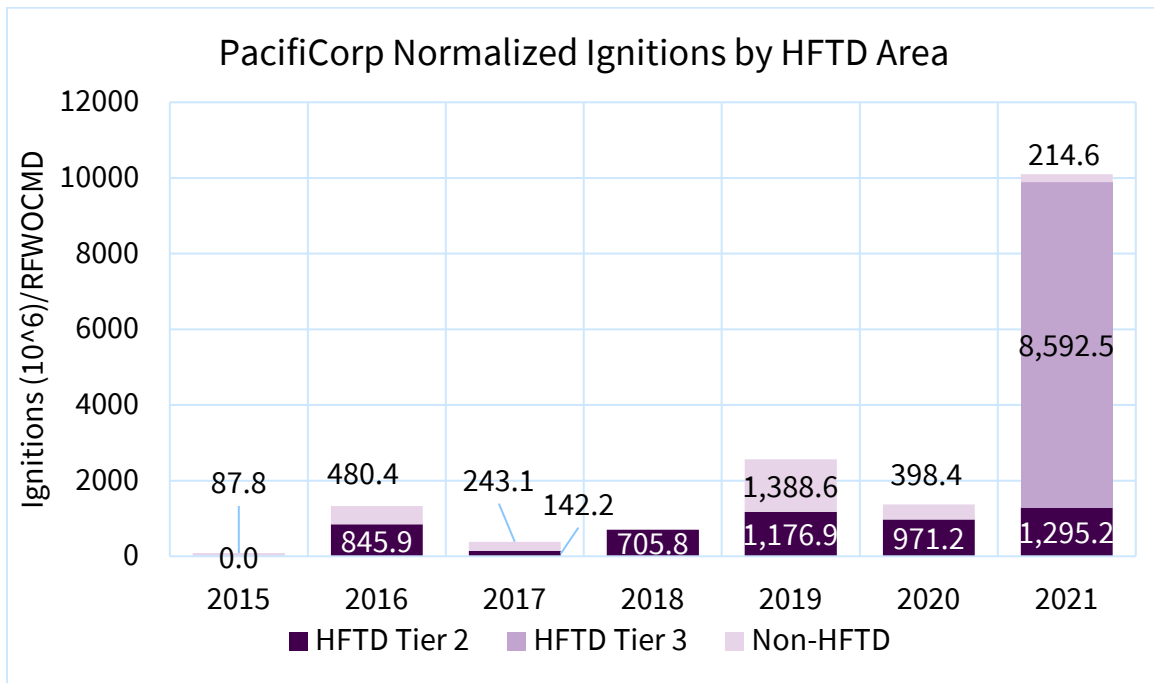


Table 10 below shows a time series of PacifiCorp utility-related ignition counts since 2015. For 2021, the total of eight ignitions was higher than the six-year average of six ignitions.

Table 10: PacifiCorp Count of Utility Related Ignitions (2015-2021)<sup>71</sup>

Description	2015	2016	2017	2018	2019	2020	2021	6 Year Avg (2015-2020)
<b>Distribution</b>	1	2	4	2	8	12	5	5
<b>Transmission</b>	0	0	0	1	3	2	3	1
<b>Total</b>	1	2	4	3	11	14	8	6

The following three figures show drivers of PacifiCorp normalized ignitions during the 2015 to 2021 period broken out by asset classification and HFTD location (i.e., Tier 3 and Tier 2). The first two figures show ignitions on the distribution system and the third figure shows ignitions on the transmission system in HFTD Tier 2 area (no transmission ignitions were reported in HFTD Tier 3 areas).

As shown in the figures below, with few exceptions, contact from objects was generally the top driver of PacifiCorp's normalized ignitions in Tier 2 and Tier 3 HFTD areas across both its distribution and transmission system from 2015 to 2021.

In 2021, distribution assets in HFTD Tier 3 areas experienced ignitions exclusively from equipment/facility failures, while those in Tier 2 areas experienced similar normalized ignitions due to equipment/facility failures, vegetation contact, and object contact. Transmission assets saw ignitions only in HFTD Tier 2 areas, driven by vegetation contact.

---

<sup>71</sup> PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.2)," Mar. 18, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52336&shareable=true>.



Figure 4: PacifiCorp Distribution Ignitions in Tier 2 HFTD Areas from 2015-2021 Normalized by RFWOCMD in Tier 2 Only Broken out by Risk Driver

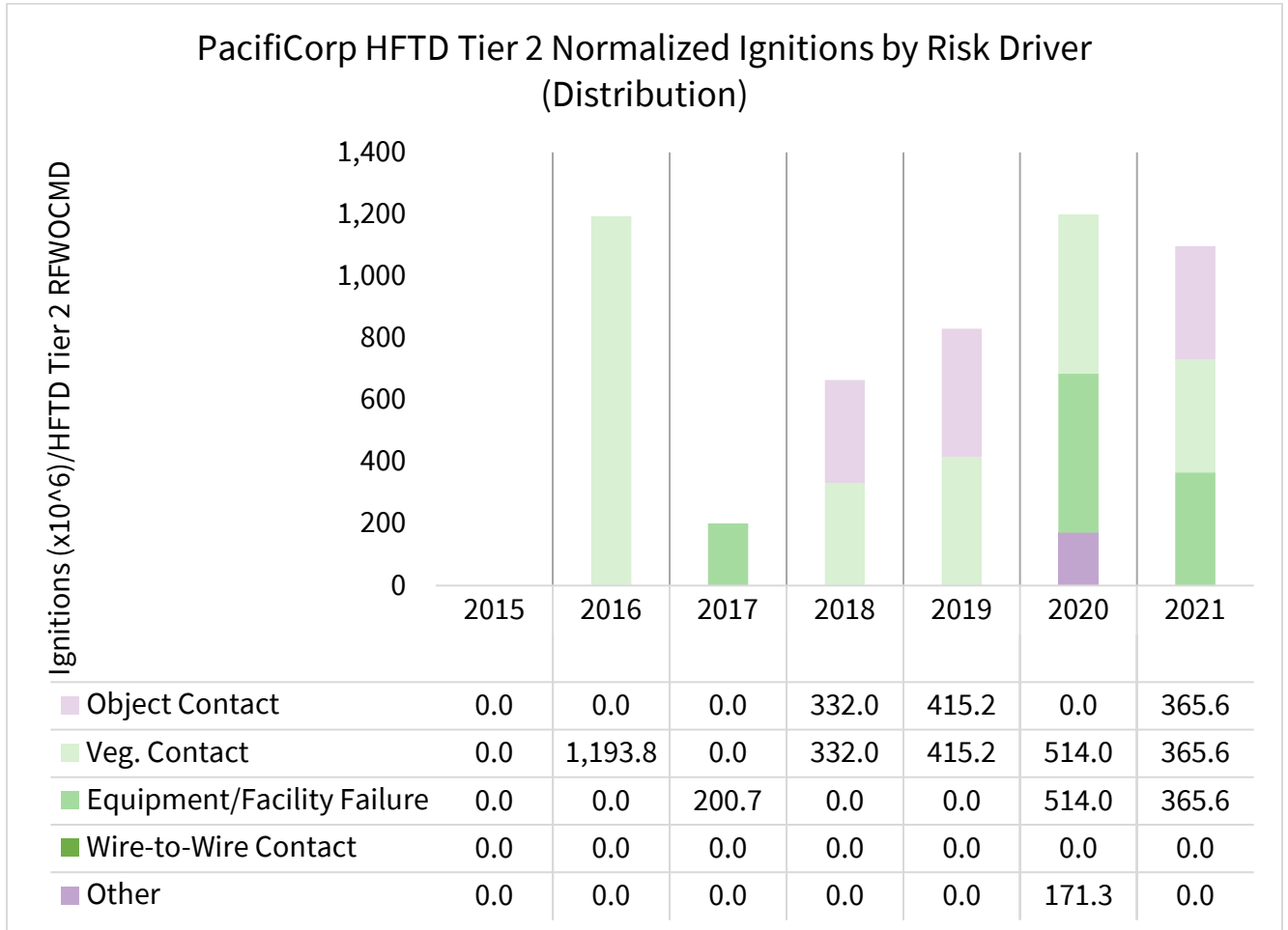
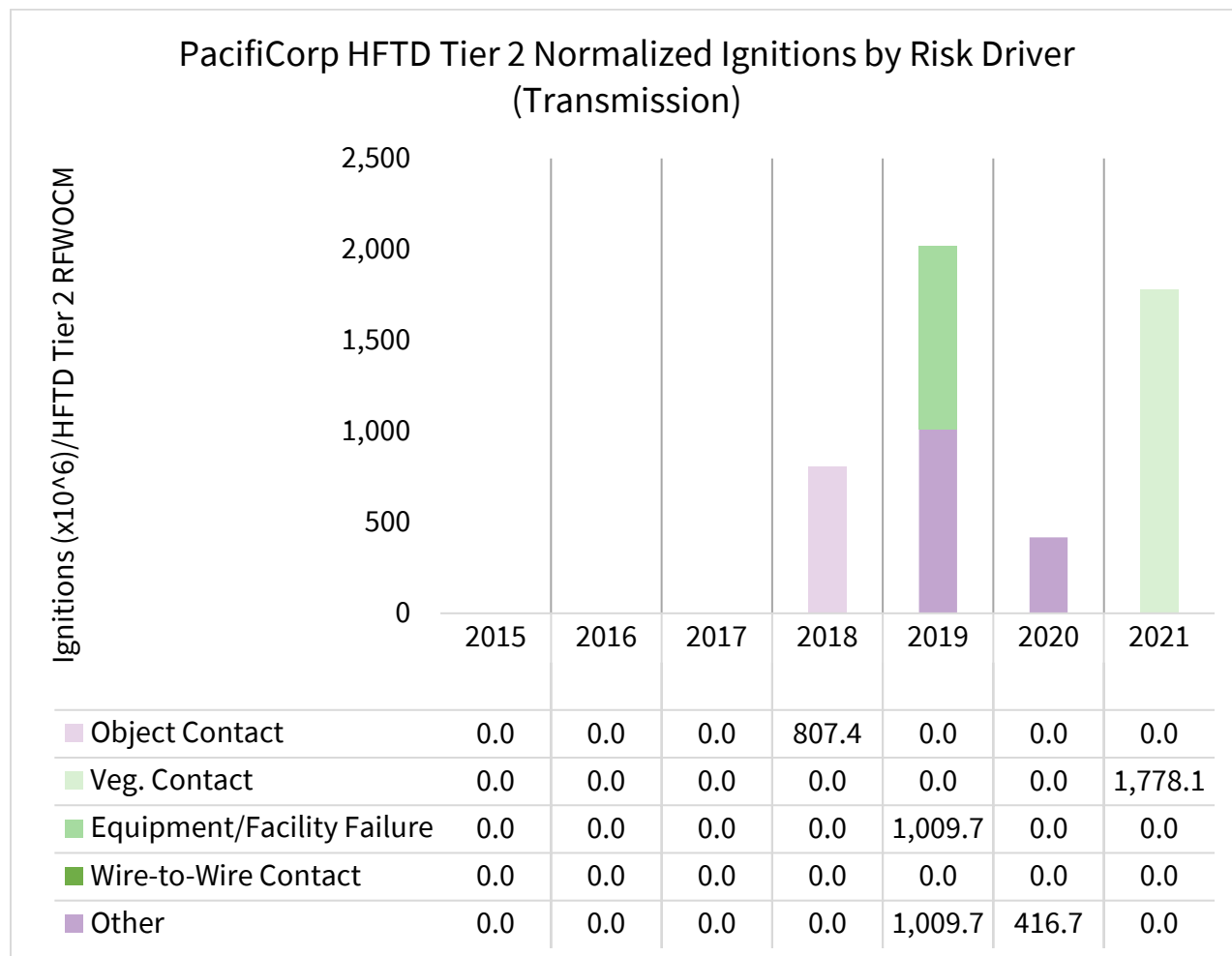


Figure 5: PacifiCorp Transmission Ignitions in Tier 2 HFTD Areas from 2015-2021 Normalized by RFWOCMD Tier 2 Only Broken out by Risk Driver



#### 4.1.2.1 Wire Down Data Analysis

QDR Table 7.1, metrics 1 through 16 include data on PacifiCorp’s distribution and transmission wire-down events from 2015 to 2021, which are normalized for RFWOCMD and depicted in Figure 6 below.

PacifiCorp saw a significant increase in normalized and absolute transmission wire down events in 2021. The absolute number of transmission wire down events in 2021 was six, as compared to two in 2020 and the six-year average of one event per year.

Compared to 2020, the normalized 2021 wire down events for distribution saw a significant increase. However, the absolute number of distribution wire down events was 52, as compared to 63 in 2020. Distribution wire down events in 2021 were in line with the preceding six-year average of 56 events per year.

Figure 6: PacifiCorp Total Wire Down Events from 2015-2021 Normalized by RFWOCMD

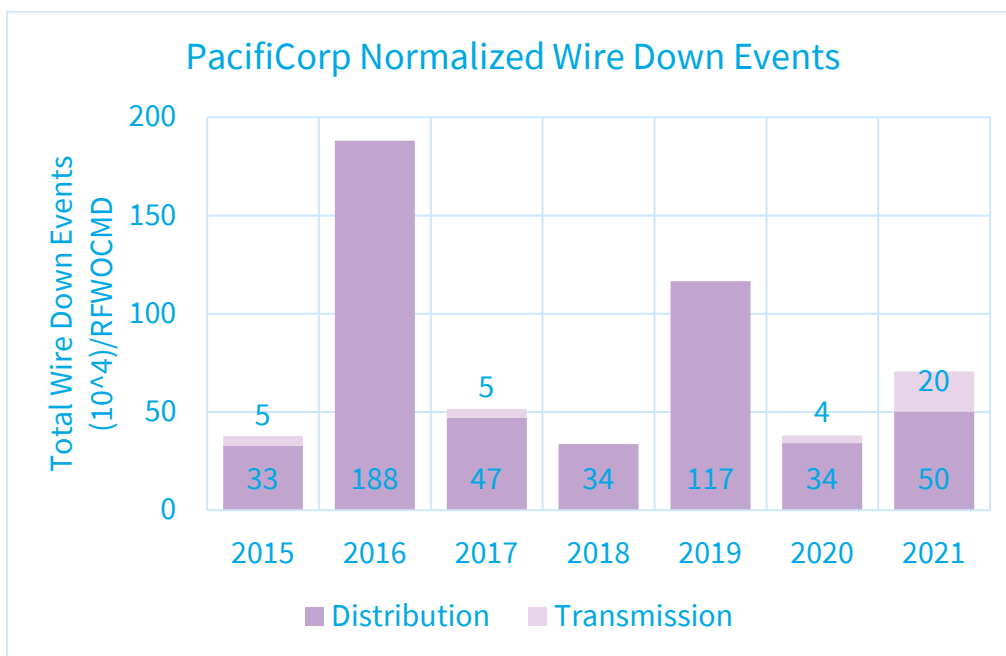


Table 11: PacifiCorp Wire Down Events (2015-2021)<sup>72</sup>

Description	2015	2016	2017	2018	2019	2020	2021	6-Year Avg (2015-2020)
<b>Distribution</b>	45	48	72	28	77	63	52	56
<b>Transmission</b>	2	0	2	0	0	2	6	1
<b>Total</b>	47	48	74	28	77	65	58	57

#### 4.1.2.2 Outage Data Analysis

QDR Table 7.1, metrics 17 through 32, include data on distribution and transmission outages of all cause types from 2015 through 2021. Figure 7 below plots PacifiCorp’s distribution and transmission outages from 2015 to 2021, normalized for RFWOCMD.

<sup>72</sup> PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.1)," Feb. 28, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52336&shareable=true>.

Table 12 shows a time series of PacifiCorp outages since 2015.

Figure 7: Outages from 2015-2021 Normalized by RFWOCMD

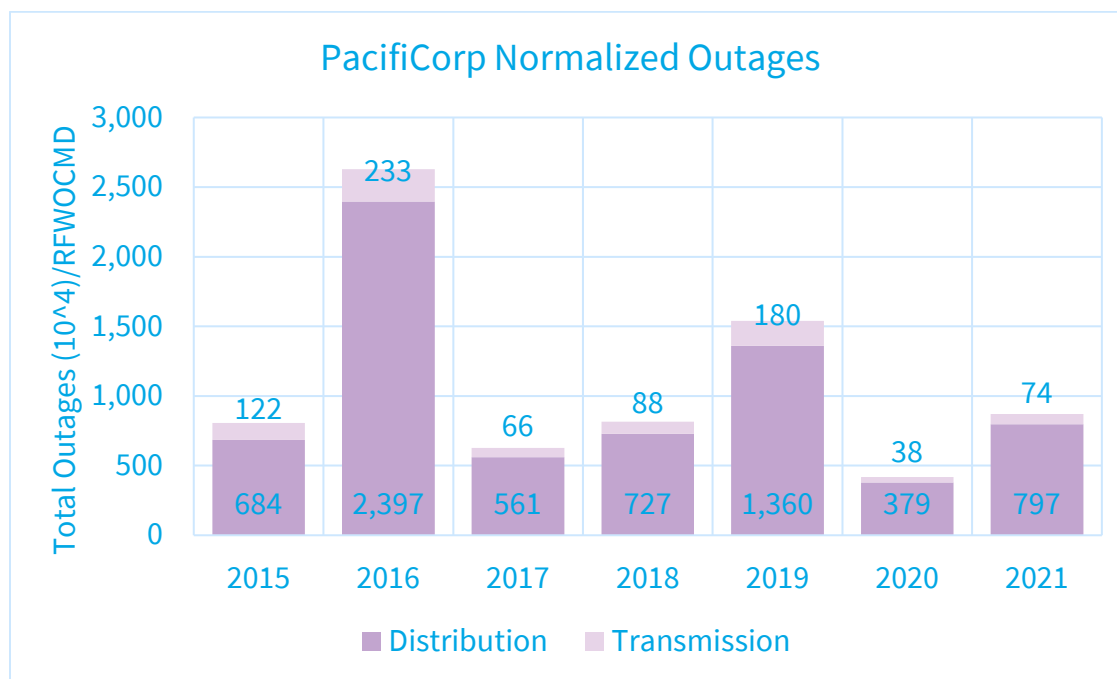


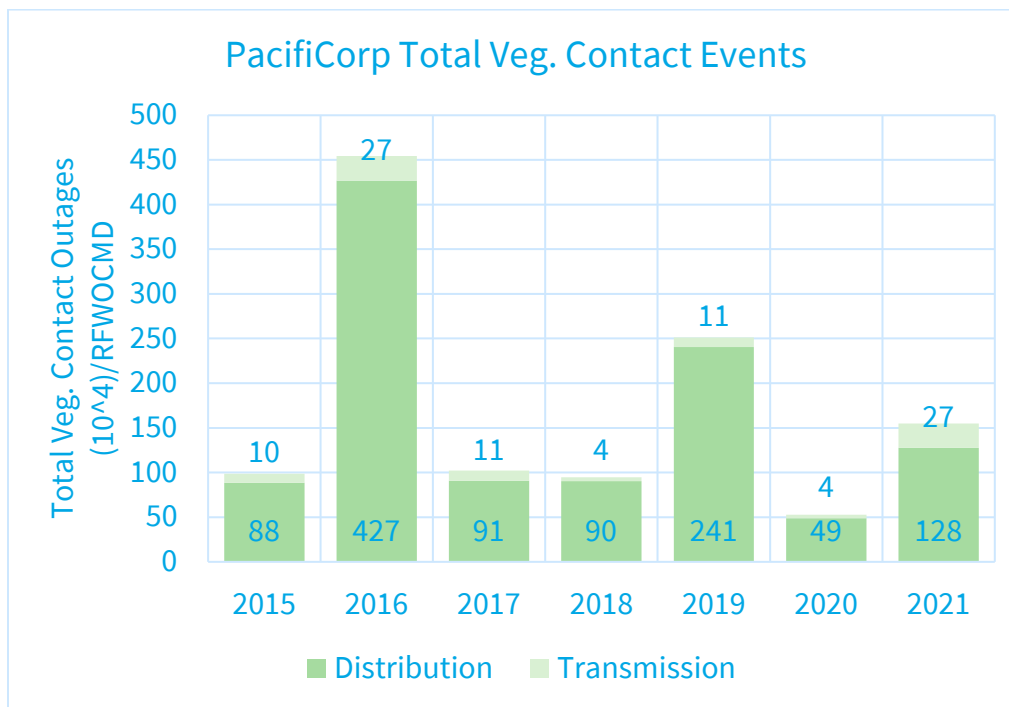
Table 12: PacifiCorp Count of Outages (2015-2021)<sup>73</sup>

Description	2015	2016	2017	2018	2019	2020	2021	6-Year Avg (2015- 2020)
<b>Distribution</b>	944	612	858	604	899	698	824	769
<b>Transmission</b>	48	17	29	21	34	20	22	28
<b>Total</b>	992	629	887	625	933	718	846	797

Figure 8 below plots PacifiCorp’s distribution and transmission vegetation contact-caused outages normalized by RFWOCMD.

<sup>73</sup> PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.1)," Feb. 28, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52336&shareable=true>.

Figure 8: Outages from Vegetation Contacts for 2015-2020 Normalized by RFWOCMD



#### 4.1.2.3 PSPS Data Analysis

While useful as a wildfire mitigation measure, PSPS carries its own risks to customers. As such, electrical corporations must reduce the duration, scope, and frequency of PSPS events. For most electrical corporations, broad use of PSPS as a wildfire mitigation measure did not occur until 2018.

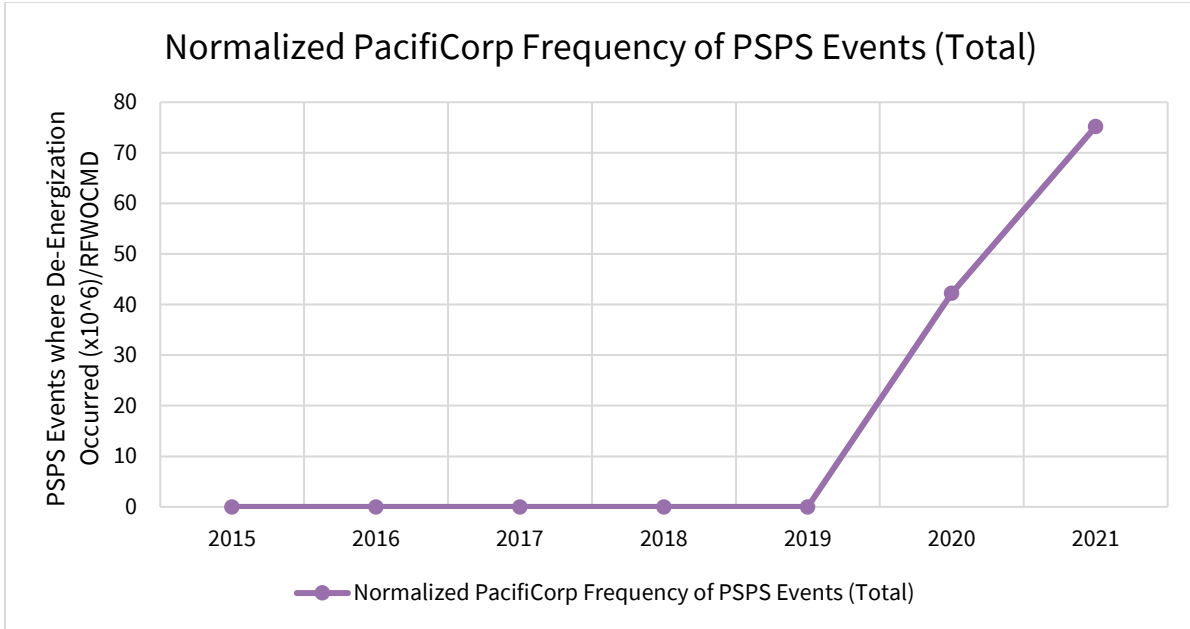
PacifiCorp reported data on its use of PSPS events and other PSPS metrics in Table 11 of its QDR. Again, Energy Safety applied the RFWOCMD metric as a normalizing parameter. From the period of 2021 to 2020, PacifiCorp saw an overall increase in normalized PSPS event metrics. Specifically, the following observations were noted:

- As shown in Figure 99, the normalized frequency of PSPS events increased significantly. However, the absolute number of PSPS events from 2020 to 2021 (there was one event each year) did not change.
- As shown in Figure 1010, the normalized scope of PSPS events (measured in number of circuit events) also increased exponentially. The absolute number of PSPS circuit events increased from two circuit events in 2020 to six circuit events in 2021.
- As shown in Figure 1111, the normalized duration of PSPS events increased slightly from 2020 to 2021. However, the absolute number of customer hours impacted declined from 20,674 customer hours in 2020 to 14,791 customer hours in 2021.
- As shown in Figure 1212, the normalized critical infrastructure count impacted by PSPS events increased slightly from 2020 to 2021. The absolute number of critical



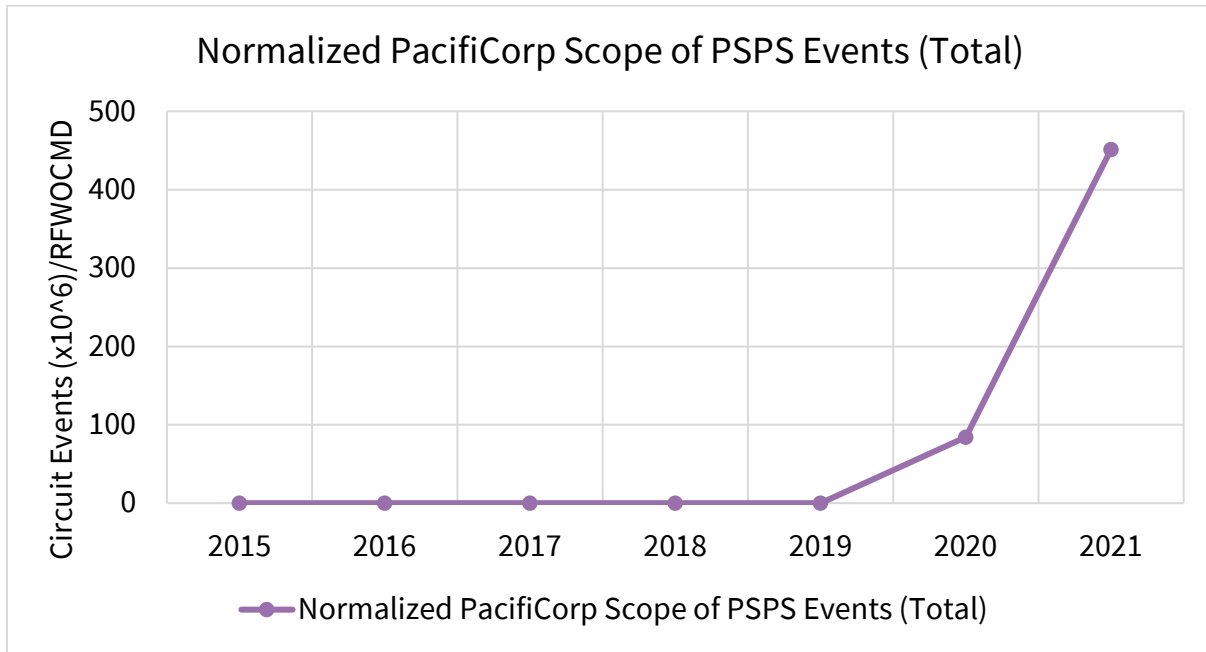
infrastructure units impacted declined from 53 critical infrastructure units to 33 critical infrastructure units.

Figure 9: Normalized Frequency of PSPS Events (2015-2021)<sup>74</sup>



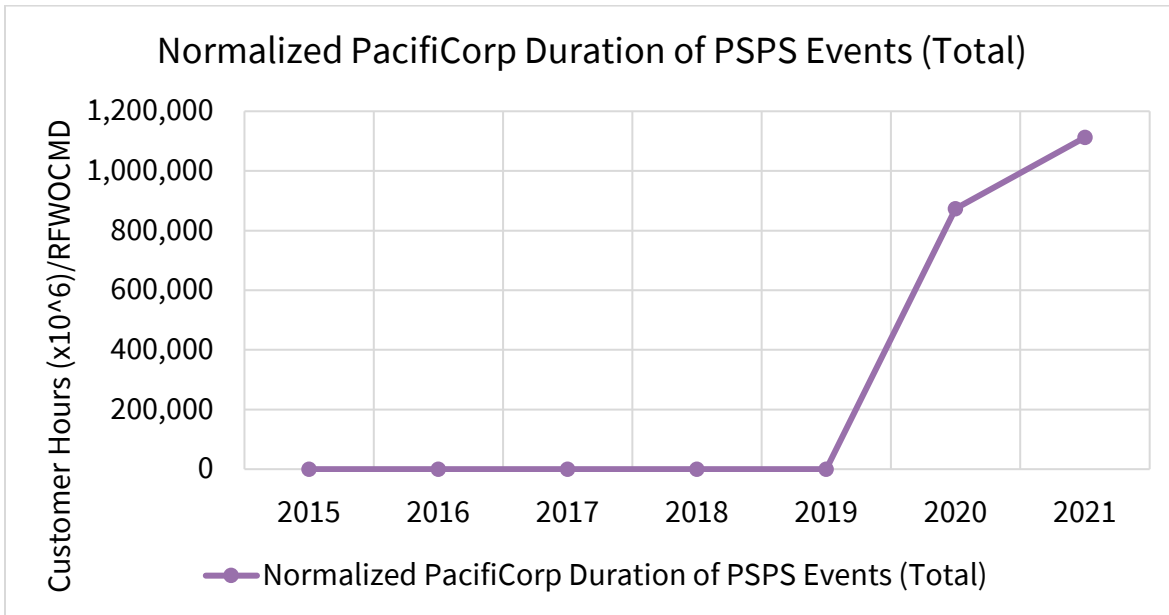
<sup>74</sup> PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 3)," Jan. 27, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52336&shareable=true>.

Figure 10: Normalized Scope of PSPS Events (2015-2021)<sup>75</sup>

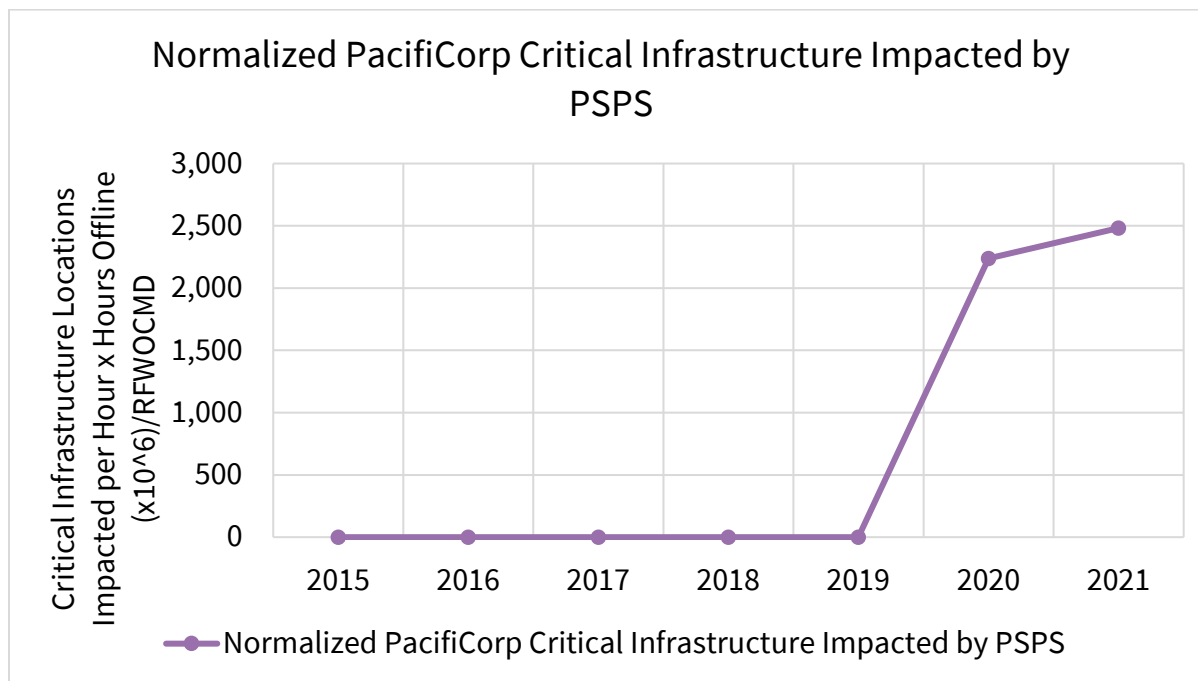


<sup>75</sup> PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 3)," Jan. 27, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52336&shareable=true>.

Figure 11: Normalized Duration of PSPS Events<sup>76</sup>



<sup>76</sup> PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 3)," Jan. 27, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52336&shareable=true>.

Figure 12: Normalized Critical Infrastructure Outage Customer-Hours due to PSPS (2015-2021)<sup>77</sup>

### 4.1.3 Outcome Metrics

Table 2 of the QDR (QDR Table 2) provides data on outcomes from electrical corporation-related wildfires including:

1. Acres burned
2. Structures damaged/destroyed
3. Injuries/fatalities
4. Value of assets destroyed

Table 13 below provides Energy Safety's assessment of PacifiCorp's short and long-term outcome patterns.

<sup>77</sup> PacifiCorp, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 3)," Jan. 27, 2022. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52336&shareable=true>.

Table 13: PacifiCorp Outcome Metrics Observations

Description
<b>Short-Term Patterns, 2020 – 2021</b>
<ul style="list-style-type: none"> <li>• Acreage burned by PacifiCorp-ignited wildfire decreased from 21 acres in 2020 to two acres in 2021.</li> <li>• Critical infrastructure damaged or destroyed by PacifiCorp-ignited wildfires decreased from 25 in 2020 to zero in 2021.</li> </ul>
<b>Long-Term Patterns, 2015 – 2021</b>
<ul style="list-style-type: none"> <li>• Acreage burned decreased from 2019's peak of 126 acres to two acres in 2021. Prior to 2019, average acres burned from 2015 to 2018 were relatively low at an average of five acres.</li> <li>• No fatalities or injuries from ignited wildfires were reported by PacifiCorp since 2015.</li> <li>• No structures have been reported destroyed from 2015 to 2021 as a result of PacifiCorp-ignited wildfires.</li> <li>• Reported dollar value of assets damaged or destroyed from PacifiCorp-ignited wildfires was \$0 in 2021, compared to a \$71,000 average for the preceding six-year period. For the preceding period, only two years reported dollar value damage, with 2015 reporting \$184,221 and 2019 reporting \$240,692.</li> </ul>