



June 21, 2024

Dear Stakeholders,

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

This Annual Report on Compliance is hereby published as of the date of this letter. Liberty Utilities 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,

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OFFICE OF ENERGY INFRASTRUCTURE SAFETY
ANNUAL REPORT ON COMPLIANCE
LIBERTY UTILITIES
2021 WILDFIRE MITIGATION PLAN UPDATE

June 2024

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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 of their approved plans and an independent evaluator completes their own review of electrical corporation compliance with approved plans.

Energy Safety's evaluation found that Liberty Utilities (Liberty) completed approximately 23 of 36 (64%) of its 2021 WMP Update initiatives, including five of the top eight initiatives with the largest allocated expenditure.

Liberty missed several critical initiative targets. In particular, Liberty did not complete its initiatives focused on grid hardening, such as its covered conductor installation and pole replacement programs. The primary factors contributing to Liberty's missed targets in 2021 were two non-utility ignited fires (the Tamarack and Caldor fires), which significantly impacted Liberty's ability to complete its 2021 WMP activities.

Non-utility caused wildfires were the primary drivers of Liberty's missed 2021 WMP initiative targets, and therefore Energy Safety found that the failure to meet certain targets was excusable under the circumstances. However, the non-utility caused wildfires do not excuse the prevalent issues Energy Safety noted with Liberty's initiative identification practices, and overall recordkeeping and documentation.

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

Liberty saw increases in total and normalized ignitions relative to Red Flag Warning Days in 2021 compared to 2020, but an overall decrease when compared to the average from recent years. At the same time, 2021 marked a year with continued elevated number of days with higher risk of fire danger (Red Flag Warning Days), decreasing only slightly in 2021 when compared to 2020. Although there was a higher relative rate of ignitions, the consequence of those ignitions resulted in relatively minor overall outcomes. During 2021, Liberty reported three acres burned (an increase from zero acres in 2020), no critical infrastructure damage, and no fatalities or injuries.

Liberty reported no Public Safety Power Shutoff events in 2021 and has not reported one since 2018. Wire down events and outages saw increases compared to prior years, both in the absolute and relative to Red Flag Warning Days.

Energy Safety acknowledges that Liberty undertook significant efforts to reduce its wildfire risk, and in some instances, Liberty achieved its objectives and targets. Energy Safety also recognizes that Liberty experienced unexpected setbacks from extraneous circumstances caused by the Tamarack and Caldor wildfires. On balance, and given the circumstances of the Tamarack and Caldor fires, Liberty was moderately successful in executing an actionable and adaptive plan for wildfire risk mitigation. While Energy Safety finds that Liberty achieved its overarching WMP objectives, there are still areas for improvement and continued learning.

1. Introduction and Background

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

Liberty submitted its 2021 WMP Update on March 5, 2021.² Energy Safety approved Liberty's WMP on July 20, 2021³.

1.1 Legal Authority

Energy Safety is responsible for overseeing compliance with electrical corporations' WMPs.⁴ 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.⁵ In addition to performing an overall assessment of compliance⁶ with the WMP, Energy Safety audits each electrical corporation's vegetation management work for compliance with WMP requirements⁷ and performs other reviews and audits. Energy Safety may rely upon metrics⁸ to evaluate WMP Compliance, including performance metrics adopted by the California Public Utilities Commission (CPUC).⁹ Annually, in consultation with Energy Safety, the CPUC adopts a wildfire mitigation plan compliance process.¹⁰ The CPUC adopted the 2021 Compliance Process via Resolution M-4860 on December 2, 2021.^{11, 12}

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,

¹ California Public Utilities Code § 8386.3(c).

² Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

³ Office of Energy Infrastructure Safety, "Evaluation of 2021 Wildfire Mitigation Plan Update Liberty Utilities," Jul. 14, 2021. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51673&shareable=true>.

⁴ California Public Utilities Code § 8386.3(c).

⁵ California Government Code § 15475.

⁶ California Public Utilities Code § 8386.3(c)(4).

⁷ California Public Utilities Code § 8386.3(c)(5)(A).

⁸ California Public Utilities Code §§ 326(a)(2), 8389(b)(1).

⁹ California Public Utilities Code § 8389(d)(4).

¹⁰ California Public Utilities Code § 8389(d)(3).

¹¹ California Public Utilities Commission, "Resolution M-4860," Dec. 02, 2021. [Online]. Available: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K722/428722129.PDF>.

¹² Office of Energy Infrastructure Safety, "Attachment 3: 2021 Wildfire Mitigation Plan Compliance Process," Oct. 13, 2021. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/compliance-process/docs/compliance-process-for-2021-wmps.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.¹³

Public Utilities Code section 326(a)(3) requires Energy Safety to utilize visual inspection of electrical corporation infrastructure and wildfire mitigation programs as a 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.¹⁴
- 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.¹⁵
- 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.¹⁶ 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.¹⁷
- 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 annual compliance review.¹⁸ Energy Safety memorializes the findings of its compliance review in this ARC.

¹³ 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>.

¹⁴ California Public Utilities Code § 8386.3(c)(1).

¹⁵ California Public Utilities Code § 8386.3(c)(2)(B)(i).

¹⁶ California Public Utilities Code § 8386.3(c)(5)(C).

¹⁷ *Id.*

¹⁸ California Public Utilities Code § 8386.3(c)(4).

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.¹⁹

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.

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.²⁰
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.²¹

¹⁹ California Public Utilities Code § 8386(a).

²⁰ 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.

²¹ 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. Liberty's 2021 WMP Update

This section provides a summary of Liberty's commitments in its 2021 WMP Update. This section organizes Liberty'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 Guidelines required each electrical corporation to describe the specific objectives of its 2021 WMP Update 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).²²

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

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

- Continue grid hardening efforts and expand to include new proactive asset replacement programs and enhanced substation improvements. This includes:
 - Expansion of its covered conductor program to build resiliency in selected locations in south Lake Tahoe,
 - Repairing and replacing assets identified in its System Survey to strengthen its overall system performance, and
 - Replacing old oil circuit breakers (OCB) with new vacuum or gas breakers at its substations.
- Build customer-focused resiliency corridors to aid in mitigating PSPS impacts. This includes:
 - A focus on tree removal and fuel reduction activities to improve forest resiliency and reduce the risk of wildfire, and
 - Conducting a study to develop a comprehensive resiliency program that includes a cost-benefit analysis and demonstrates wildfire and PSPS risk reductions, in conjunction with filing an application supporting the proposed plan, including microgrid selected sites.

²² 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>.

- Utilize Fire Probability Index (FPI) tools and other situational risk models to better plan for emergency PSPS events, alleviate customer impacts, and reduce ignition risk due to extreme weather and fuel conditions. This includes:
 - Fully integrating situational awareness tools and applications into system operations and monitoring of conditions. Data from weather stations, regional camera networks, and FPI assessments to alert operations of heightened fire risk can all be utilized and communicated to field operations and system control operators to adjust work conditions.
- Improve system controls on lines by installing line reclosers to allow for flexibility of operations during high fire risk days and PSPS switching. This includes:
 - Installation of fault detection devices, automatic reclosers, supervisory control and data acquisition (SCADA), and sectionalizing equipment to improve overall system operations, flexibility, and customer interruptions.
- Utilize LiDAR technology and reporting capabilities to enhance both vegetation and asset inspections to target future remediation work. This includes:
 - Establishing a contract for annual LiDAR inspections,
 - Completing 100% of LiDAR inspections,
 - Developing a process for generating work based on LiDAR inspections,
 - Enhancing communications to improve management of community impacts, and
 - Improving vegetation risk models for prioritizing activities.
- Enhance Vegetation Management work to reduce wildfire risk. This includes:
 - Expansion of program for fuel management and slash reduction,
 - Establishing a contract for quality assurance/quality control program, and
 - Implementing the quality assurance/quality control program.²³

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.

²³ Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. pp. 48-51. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

Liberty's 2021 WMP Update included a total of 36 initiatives allocated across 9 of the 10 categories.^{24, 25}

Table 1 below provides a summary of Liberty's allocation of WMP initiatives across categories, its reported planned expenditure in each category for 2021, and the percentage of the total 2021 WMP Update budget the expenditure in each category comprised.

Some initiatives provided quantitative targets (e.g., miles completed for system hardening initiatives). Other initiatives included qualitative measures (e.g., improvements made to fire forecast abilities and indices).

Table 1: Liberty's 2021 WMP Update Planned Expenditure by Category²⁶

Initiative Category	No. of Initiatives	2021 Planned Expenditure (\$K)	% of 2021 WMP Update Planned Budget
1. Risk assessment and mapping	1	\$10	<1%
2. Situational awareness and forecasting	4	\$295	<1%
3. Grid design and system hardening	8	\$32,905	63%
4. Asset management and inspections	6	\$2,977	6%
5. Vegetation management and inspections	9	\$13,580	26%
6. Grid operations and protocols	3	\$548	1%

²⁴ Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. pp. 80-141. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

²⁵ 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. California Public Utilities Commission, "Resolution WSD-011 Attachment 2.2: 2021 Wildfire Mitigation Plan Guidelines Template," Nov. 2020. p. 43. [Online]. Available: <https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/attachment-2.2-to-wsd-011-2021-wmp-guidelines-template.pdf>.

²⁶ Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 18. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

Initiative Category	No. of Initiatives	2021 Planned Expenditure (\$K)	% of 2021 WMP Update Planned Budget
7. Data governance	2	\$418 ²⁷	<1%
8. Resource Allocation Methodology ²⁸	0	\$124	<1%
9. Emergency planning and preparedness	2	\$900	2%
10. Stakeholder cooperation and community engagement	1	\$251	<1%
Total	36	\$52,007 ²⁹	100%

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

Table 2: Liberty's Planned Expenditure by Year³⁰

Year	Planned Expenditure (\$K)
2020	\$30,699
2021	\$52,007

²⁷ Energy Safety understands expenditure Tables 3-1 and 3-2 of Liberty's 2021 WMP Update have a \$50,000 discrepancy in planned 2021 totals when cross referencing with Liberty's 2021 Q4 QDR and 2021 EC ARC submission specifically in the initiative category of Data Governance. In all sources but Table 3-2, Data Governance planned expenditure totals to \$418,000, while in Table 3-2, it is reported as \$368,000. This report adopts the planned expenditure presented in all sources other than Table 3-2 of Liberty's 2021 WMP Update to maintain consistency. Liberty Utilities, "Liberty Utilities 2021 Wildfire Mitigation Plan Update," March 5, 2021. [Online] Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf

²⁸ Despite having no initiatives with targets for Resource Allocation Methodology in their 2021 WMP Update, Liberty includes planned expenditure for initiative 7.3.8.1 – Allocated methodology development and application. The expenditure for this initiative is explained in the EC ARC to be included as a cross-category goal with initiative 7.3.7.1 – Central repository for data. Liberty Utilities, "Liberty Utilities 2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. [Online] Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>.

²⁹ Total modified to align with Table 3-1 of the 2021 WMP Update, as described in the above footnotes.

³⁰ Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 18. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

Year	Planned Expenditure (\$K)
2022	\$50,210 ³¹
2020-2022 Plan Period	\$132,916 ³²

Table 3 lists the top 10 initiatives by planned expenditure. The last row in Table 3 shows that the 10 listed initiatives (out of 36 total) make up 87% of Liberty's total 2021 WMP Update planned expenditure.

Table 3: Liberty's 2021 WMP Update Top 10 Planned Expenditure Initiatives³³

Initiative Number	Initiative	2021 Planned Expenditure (\$K)	% of WMP Planned Budget
7.3.3.3	Covered conductor installation	\$16,564	32%
7.3.3.6	Distribution pole replacement and reinforcement, including with composite poles	\$10,605	20%
7.3.5.15	Remediation of at-risk species	\$5,500	11%
7.3.4.9 ³⁴	Other discretionary inspection of distribution electric lines and	\$2,300	4%

³¹ Energy Safety understands expenditure Tables 3-1 and 3-2 of Liberty's 2021 WMP Update have a \$50,000 discrepancy in planned 2022 total expenditure when cross referencing with Liberty's 2021 Q4 QDR submission for the Data Governance category. In all other sources separate from Table 3-2, Data Governance planned expenditure totals to \$351,000, whereas in Table 3-2, Data Governance planned expenditure is reported as \$301,000. This correction is reflected in the total planned expenditure of \$50,210,000 for 2022. Liberty Utilities, "Liberty Utilities 2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. [Online] Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

³² Adjusted for matters described in the above footnote.

³³ Liberty Utilities, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2020 (Table 12)," Mar. 1, 2021. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/misc/wsd/liberty_q4_2020_qdr.xlsx.

³⁴ Within the 2021 WMP Update, Liberty does not specify a target under this initiative, nor is it subsequently reported on in Liberty's QIUs. As such, while expenditure was allocated, Energy Safety does not deem initiative 7.3.4.9 as an initiative that can be subjected to a compliance evaluation. Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 101. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

Initiative Number	Initiative	2021 Planned Expenditure (\$K)	% of WMP Planned Budget
	equipment, beyond inspections mandated by rules and regulations		
7.3.3.12	Other corrective action	\$2,290	4%
7.3.5.16	Removal and remediation of trees with strike potential to electric lines and equipment	\$2,200	4%
7.3.5.5	Fuel management and reduction of "slash" from vegetation management activities	\$2,000	4%
7.3.3.16³⁵	Undergrounding of electric lines and/or equipment	\$1,445	3%
7.3.3.7	Expulsion fuse replacement	\$1,200	2%
7.3.5.20	Vegetation Management to achieve clearances around electric lines and equipment	\$1,000	2%
Total³⁶		\$45,105	87%

³⁵ Although Liberty's 2021 WMP Update allocates expenditures to this initiative, it does not specify a target under this initiative, nor does it characterize it as being a unique WMP activity. Liberty explains in the 2021 WMP Update that the undergrounding projects currently underway are customer-initiated Rule 20A conversions of overhead systems based on county-allocated funds. As such, while expenditure was allocated, Energy Safety does not deem initiative 7.3.4.9 as an initiative that can be subjected to a compliance evaluation. Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 96. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

³⁶ Total figures not exact due to rounding.

4. Information Sources Used for ARC Assessment

Energy Safety relied upon the following sources of information to conduct its analysis for Liberty's ARC:

- 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,³⁷ 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 purposes of Energy Safety's assessment of Liberty'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.³⁸ The 2021 EC ARCs must include:

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

³⁷ Energy Safety receives data from the electrical corporation through three main paths: quarterly advice letter submissions, quarterly data request submissions, and quarterly initiative updates.

³⁸ 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>.

- A full and complete listing of all change orders 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 expenditures versus actual WMP initiative expenditures and an explanation of any differentials between the planned and actual expenditures.
- 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

Liberty timely submitted its EC ARC on April 4, 2022. In its EC ARC, Liberty provided aggregated, narrative progress updates surrounding each of the 10 major initiative categories per the WMP Update Guidelines, and in some cases discussed missed targets either in its narratives or within its planned vs. actual expenditure table.³⁹ However, its reporting did not clearly or consistently assert whether it met or missed specific targets for each of the individual initiatives, nor did it include a discussion of missed targets per initiative.

The primary themes in Liberty's discussion of its missed targets related to the 2021 Caldor and Tamarack fires, which Liberty stated significantly impacted its ability to commit resources to WMP initiatives and resulted in higher costs than expected during the period. For many WMP initiatives, Liberty adjusted its timelines and deferred its 2021 work on WMP initiatives to the 2022 WMP cycle.

Because Liberty only provides general commentary regarding its progress on major risk categories in its EC ARC, this section of this ARC does not attempt to describe missed initiative targets. Additional information from the EC ARC is included in Appendix A and is discussed, as relevant, in Section 5 of this report.

³⁹ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p. 12. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>.

4.2 Independent Evaluator (IE) ARC

4.2.1 Overview

Each year before March 1, Energy Safety, in consultation with the Office of the State Fire Marshal, publishes a list of qualified independent evaluators.⁴⁰ An electrical corporation must engage an independent evaluator from the list to review and assess its compliance with its approved WMP.⁴¹ The independent evaluator must issue its IE ARC by July 1 of each year, covering the previous calendar year.⁴² 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.⁴³

4.2.2 Relevant Information

Liberty selected Guidehouse, Inc. and NV5 as the independent evaluator to assess its compliance with its 2021 WMP Update. Guidehouse, Inc. and NV5 (hereinafter IE) issued a combined IE ARC on July 15, 2022.

The IE evaluated 37⁴⁴ initiatives. Of those, the IE found Liberty noncompliant with 17 initiatives.

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

⁴⁰ California Public Utilities Code § 8386.3(c)(2)(A).

⁴¹ California Public Utilities Code § 8386.3(c)(2)(B).

⁴² California Public Utilities Code § 8386.3(c)(2)(B).

⁴³ California Public Utilities Code § 8386.3(c)(2)(B)(ii).

⁴⁴ While the IE evaluated 37 initiatives, these do not align with the 36 initiatives in the WMP. The IE did not evaluate the following three initiatives included in Liberty's 2021 WMP Update: 7.3.3.2 Circuit breaker maintenance and installation to de-energize lines upon detecting a fault, 7.3.3.11 Mitigation of impact on customers and other residents affected during PSPS event, and 7.3.4.4 Infrared inspections of distribution electric lines and equipment. The IE instead evaluated four initiatives that Energy Safety does not recognize as initiatives with planned activities: 7.3.2.3 Fault indicators for detecting faults on electric lines and equipment, 7.3.3.16 Undergrounding of electric lines and/or equipment, 7.3.4.3 Improvement of inspections, and 7.3.10.2 Cooperation and best practice sharing with agencies outside CA. Guidehouse Inc. & NV5, "Independent Evaluator Annual Report on Compliance," Jun. 30, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

Table 4: Summary of Liberty's IE ARC Findings⁴⁵

Finding Category	# of Initiatives
Compliant	14
Noncompliant	17
Undetermined	6 ⁴⁶
Total	37

The 17 initiatives with IE findings of noncompliance are discussed below.

- 7.3.2.1 Weather Stations
 - IE finding: zero weather station installations completed out of goal of 10 installations.⁴⁷
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.2.2 Continuous Monitoring Sensors
 - IE finding: zero distribution fault anticipation unit installations completed out of goal of 10 installations.⁴⁸
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.3.3 Covered Conductor Installation
 - IE finding: 3.75 circuit of covered conductor installation completed out of goal of 9.1 circuit miles (per Liberty's QIU).⁴⁹
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.3.6 Distribution Pole Replacements

⁴⁵ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁴⁶ The IE found six initiatives for which it could not draw final conclusions because these initiatives lacked explicit 2021 goals in the WMP Update or the documentation provided was insufficient for verification purposes. These were: 7.3.5.15 Remediation of at-risk species, 7.3.2.3 Fault indicators for detecting faults on electric lines and equipment, 7.3.3.12 Other corrective action 7.3.4.3 Improvement of inspections, 7.3.6.3 Personnel work procedures and training in conditions of elevated fire risk and 7.3.10.2 Cooperation and best practice sharing with agencies outside CA. Guidehouse Inc. & NV5, "Independent Evaluator Annual Report on Compliance," Jun. 30, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁴⁷ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 1. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁴⁸ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 1. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁴⁹ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 1. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

- IE finding: 211 pole replacements completed out of goal of 400 replacements.⁵⁰
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.3.7 Expulsion Fuse Replacement
 - IE finding: 867 fuse replacements completed out of goal of 1,500 replacements.⁵¹
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.3.9 System Automation Equipment
 - IE finding: 2 automatic recloser installations completed out of goal of 3 installations.⁵²
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.4.1 Detailed inspections of distribution electric lines and equipment
 - IE Finding: 59.8 line-miles of inspections completed out of goal of 210 line-miles.⁵³
 - Liberty did not self-identify this initiative as noncompliant.
- 7.3.4.6 Intrusive Pole Inspections
 - IE finding: 3,506 intrusive pole inspections completed out of goal of 3,600 inspections.⁵⁴
 - Liberty did not self-identify this initiative as noncompliant.
- 7.3.4.14 Quality Assurance / Quality Control (QA/QC) of Inspections
 - IE finding: QA/QC program was not complete in 2021 and was only in progress.⁵⁵
 - Liberty did not self-identify this initiative as noncompliant.
- 7.3.4.15 Substation Inspections
 - IE finding: 38 substation inspections completed out of goal of 46 inspections.⁵⁶
 - Liberty did not self-identify this initiative as noncompliant.
- 7.3.5.1 Additional Efforts Made to Manage Community and Environmental Impacts

⁵⁰ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁵¹ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁵² Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁵³ The IE ARC reports that Liberty stated two targets: one for 210 miles and one for 328 miles. Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁵⁴ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁵⁵ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁵⁶ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 3. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

- IE finding: 3.4 line-miles treated out of goal of 13 line-miles.⁵⁷
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.5.2 Detailed Inspection of Vegetation
 - IE finding: 177 line-miles of inspections completed out of goal of 207 line-miles (per Liberty's QIU).⁵⁸
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.5.7 LiDAR Inspections of Distribution and Transmission Electric Lines
 - IE finding: 710 line-miles of inspections completed out of goal of 730 line-miles.⁵⁹
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.5.15 Remediation of at-risk Species
 - IE finding: 238 line-miles treated out of goal of 328 line-miles.⁶⁰
 - Liberty did not self-identify this initiative as noncompliant.
- 7.3.5.16 Removal and Remediation of Trees with Strike Potential
 - IE finding: 128 line-miles treated out of goal of 150 line-miles.⁶¹
 - Liberty did not self-identify this initiative as noncompliant.
- 7.3.6.1 Automatic recloser operations
 - IE finding: Distribution fault anticipation pilot was not complete.⁶²
 - Liberty did self-identify this initiative as noncompliant.
- 7.3.7.1 Centralized Repository for Data
 - IE finding: Central repository for data was not complete in 2021.⁶³
 - Liberty did not self-identify this initiative as noncompliant.

After considering Liberty's response to the IE ARC, Energy Safety agrees with eight of the 17 IE findings of noncompliance. Those include:

- 7.3.2.1 Weather Stations
- 7.3.2.2 Continuous Monitoring Sensor
- 7.3.3.3 Covered Conductor Installation

⁵⁷ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 3. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁵⁸ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. pp. 24-25. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁵⁹ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 3. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁶⁰ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. pp. 18-19. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁶¹ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. pp. 19-20. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁶² Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 39. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁶³ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 4. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

- 7.3.3.6 Distribution Pole Replacements
- 7.3.3.7 Expulsion Fuse Replacement
- 7.3.3.9 System Automation Equipment
- 7.3.5.1 Additional Efforts Made to Manage Community and Environmental Impacts
- 7.3.6.1 Automatic recloser operations

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 including WMP initiatives and general wildfire safety. During Inspection Program v1, all findings were issued to the electrical corporations as defects. Inspections conducted under Inspection Program v2 were 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, 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)^{64, 65} is issued.

⁶⁴ California Government Code § 15475.2.

⁶⁵ 14 California Code Regulations § 29302(b)(1).

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 7,851 inspection activities in Liberty's service territory in 2021.

Under Inspection Program v1 of Liberty's infrastructure during the 2021 WMP Cycle, Energy Safety identified 16 defects. Examples of defects found during Energy Safety's inspections included exposed ground wire and guy wire issues. Liberty timely corrected the defects identified by Energy Safety.

As a result of inspection activities under Inspection Program v2, Energy Safety identified four defects and one violation concerning issues such as pole damage. Liberty timely corrected the defects and violation identified by Energy Safety. Energy Safety also notified Liberty of 229 conditions presenting minor risk. These conditions included dislodged avian protection covers, inaccurate pole numbers, transformer damage, vegetation touching guy wires above the insulator, danger trees, pole damage, pole lean, and failure to report initiative completion accurately.

4.4 Audits

4.4.1 Overview

Public Utilities Code section 8386.3(c)(5) requires Energy Safety to perform an audit to determine whether the electrical corporation "substantially complied with the substantial portion"⁶⁶ 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 8386.3(c)(5), Energy Safety conducted an audit of Liberty's compliance with the vegetation management requirements in its 2021 WMP Update.

4.4.2 Relevant Information

On March 18, 2024, Energy Safety issued its SVM Audit and Report for Liberty. The purpose of the SVM Audit was to assess whether Liberty met its quantitative commitments and verifiable statements in its 2021 WMP Update related to vegetation management activities.

In the SVM Audit and Report, Energy Safety found that Liberty performed all of the work required for the vegetation management initiatives in its 2021 WMP Update. Consequently, Energy Safety concluded that Liberty substantially complied with the substantial portion of the vegetation management requirements in its 2021 WMP Update.

⁶⁶ California Public Utilities Code § 8386.3(c)(5)(C).

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 when assessing whether the electrical corporation complied with its 2021 WMP Update. 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 Liberty met its 2021 WMP quantitative and qualitative initiative targets and analyzed performance of Liberty'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.

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 California Public Utilities Commission or 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 Liberty's performance in 2021 in relation to each of the five 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.⁶⁷
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 Liberty implemented the wildfire mitigation initiatives in its approved WMP, including whether Liberty funded and performed the commitments stated for each initiative.

To accomplish this, Energy Safety assessed:

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

⁶⁷ 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 found that Liberty met or exceeded its targets for 23 of its 36 2021 WMP Update initiatives (64%). Of those 23, Liberty met five of its 16 quantitative initiative targets and 18 of 20 qualitative initiative targets. Energy Safety determined that 10 targets were not met. Energy Safety was unable to determine compliance for three initiatives due to insufficient information or significant inconsistencies in Liberty's reporting.

Of the five quantitative initiatives Energy Safety deems as met, two were within 95% of the target—for purposes of this compliance assessment, Energy Safety considers those initiatives substantially met.

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

The following are the 10 initiatives for which Liberty did not meet or substantially meet its targets:

Situational Awareness & Forecasting

1. Advanced weather monitoring and weather stations (7.3.2.1):
 - Completed zero of 10 station installations, a 0% completion rate.
 - Liberty reported that the Tamarack and Caldor fires impacted its ability to progress on this initiative.
2. Continuous monitoring sensors (7.3.2.2):
 - Completed zero of 10 sensor deployments, a 0% completion rate.
 - Liberty reported that the Tamarack and Caldor fires impacted its ability to progress on this initiative.

Grid Design & System Hardening

3. Circuit breaker maintenance and installation to de-energize lines upon detecting a fault (7.3.3.2):
 - Replaced one of two oil circuit breakers, a 50% completion rate.
 - Liberty reported it plans to replace the second oil circuit breaker in 2022.
4. Covered conductor installation (7.3.3.3):
 - Completed 3.75 of 10.1⁶⁸ line-miles of covered conductor, a 37% completion rate.

⁶⁸ This is the approved WMP goal, as opposed to the reported goal of 9.1 line-miles reported in the QIU and EC ARC.

- Liberty reported that the Tamarack and Caldor fires impacted its ability to progress on this initiative.
- 5. Distribution pole replacement and reinforcement, including with composite poles (7.3.3.6):
 - Replaced 211 of 400 poles, a 53% completion rate.
 - Liberty reported that the Tamarack and Caldor fires impacted its ability to progress on this initiative.
- 6. Expulsion fuse replacement (7.3.3.7):
 - Completed 867 of 1,500 fuse installations, a 58% completion rate.
 - Liberty reported that the Tamarack and Caldor fires impacted its ability to progress on this initiative.
- 7. Installation of system automation equipment (7.3.3.9):
 - Completed two of three automatic recloser installations, a 67% completion rate.
 - Liberty reported that the Tamarack and Caldor fires impacted its ability to progress on this initiative.

Asset Management & Inspections

- 8. Infrared inspections of distribution electric lines and equipment (7.3.4.4):
 - Liberty did not report on developing an infrared inspection Request for Proposals in 2021.

Vegetation Management & Inspections

- 9. Additional efforts to manage community and environmental impacts (7.3.5.1):
 - Treated 3.4 line-miles of 13 line-miles, a 26% completion rate.
 - Liberty reported it did not receive permit authorization from the US Forest Service to progress on this initiative.

Grid Operations & Operating Protocols

- 10. Automatic recloser operations (7.3.6.1):
 - Completed two of three automatic recloser installations, a 67% completion rate.
 - Liberty reported that the Tamarack and Caldor fires impacted its ability to progress on this initiative.

Energy Safety found in many instances that Liberty identified initiatives as distinct in its 2021 WMP Update (including assigning planned expenditure for the initiative) yet failed to establish mechanisms to track progress against the target. In other instances, Liberty did not identify initial targets in the 2021 WMP Update, or these targets were otherwise unclear, unmeasurable, or erroneously reported in the QIUs. Additionally, in some cases, Liberty

reported planned or actual expenditures that could not be traced back to a specific initiative or its planned activities. The discrepancies in Liberty's reporting highlight the importance of establishing proper quality review controls over its WMP reporting.

Below are three 2021 WMP Update initiatives for which Energy Safety was unable to determine compliance for the reasons stated above.

Grid Design & System Hardening

1. Mitigation of impact on customers and other residents affected during PSPS event (7.3.3.11).

Asset Management & Inspections

2. Detailed inspections of distribution electric lines and equipment (7.3.4.1).
3. Patrol inspections of distribution electric lines and equipment (7.3.4.11).

Overall, Liberty completed or substantially completed 64% of its 2021 WMP Update initiatives. Of the 10 missed targets discussed above, all had a completion rate below 70%.

Appendix C provides detail at the initiative level on Energy Safety's comprehensive assessment of Liberty's performance against its stated initiatives, including target and reporting inconsistencies observed at the initiative level.

5.1.2 2021 WMP Update Initiative Funding

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

Each EC ARC includes descriptions of all planned WMP initiative expenditure versus actual expenditure and an explanation of any differences between the planned and actual expenditure.⁶⁹

Liberty's planned expenditure for 2021 was approximately \$52 million. Liberty's actual reported expenditure was approximately \$34 million, representing an under-expenditure of approximately \$18 million.⁷⁰

Liberty attributed the under-expenditure to being primarily driven by the Tamarack and Caldor fires, which impacted Liberty's ability to progress on a substantial portion of its 2021 WMP initiatives. The most significant deviation from planned expenditure was a \$6 million under-expenditure on initiative 7.3.3.3 (Covered Conductor Installation). For this initiative

⁶⁹ 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>.

⁷⁰ Liberty Utilities, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 12)," Feb. 1, 2022. [Online]. Available: efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51991&shareable=true.

and others such as 7.3.2.1, 7.3.2.2, 7.3.3.6, 7.3.3.7, 7.3.4.9, 7.3.5.15, and 7.3.5.16, Liberty reported that the two fires impacted construction resources, created supply chain issues, impacted material availability, and created other delays.

Each IE ARC also includes a determination of whether the electrical corporation failed to fund any activities included in its WMP. In Table 11 of the IE ARC,⁷¹ Liberty was found to have 21 initiatives where Liberty expended less than forecast, seven of which pertained to initiatives where the IE found Liberty to have missed its targets. These included:

- Advanced weather monitoring and weather stations (7.3.2.1),
- Circuit breaker maintenance and installation to de-energize lines upon detecting a fault (7.3.3.2),
- Covered conductor installation (7.3.3.3),
- Distribution pole replacement and reinforcement, including with composite poles (7.3.3.6),
- Expulsion fuse replacement (7.3.3.7),
- Infrared inspections of distribution electric lines and equipment (7.3.4.4), and
- Additional efforts to manage community and environmental impacts (7.3.5.1).

Energy Safety's review of Liberty's EC ARC identified these same seven initiatives as noncompliant.⁷²

In terms of significance of completed initiatives relative to expenditure, Liberty completed targets for five of the eight initiatives evaluated with the largest planned expenditure.⁷³ Further, when assessing the significance of the missed targets, the 10 total missed targets totaled approximately 58% of the overall 2021 planned expenditure.

5.2 Criterion 2: 2021 WMP Update Objectives

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

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

- Objective 1: Continue grid hardening efforts and expand to include new proactive asset replacement programs and enhanced substation improvements.

⁷¹ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. pp. 48-53. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁷² Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p. 13-16. [Online]. Available: efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true.

⁷³ As noted previously in this ARC, two of the top 10 initiatives by planned expenditure could not be evaluated in this ARC due to reporting quality issues. These two initiatives are excluded from the total 36 initiatives analyzed by Energy Safety in this ARC.

- Objective 2: Build customer-focused resiliency corridors to aid in mitigating PSPS impacts.
- Objective 3: Utilize FPI tools and other situational risk models to better plan for emergency PSPS events, alleviate customer impacts, and reduce ignition risk due to extreme weather and fuel conditions.
- Objective 4: Improve system controls on lines by installing line reclosers to allow for flexibility of operations during high fire risk days and PSPS switching.
- Objective 5: Utilize LiDAR technology and reporting capabilities to enhance both vegetation and asset inspections to target future remediation work.
- Objective 6: Enhancements in Vegetation Management work to reduce wildfire risk.

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

5.2.1 Objective 1: Continue grid hardening efforts and expand to include new proactive asset replacement programs and enhanced substation improvements

Expansion of covered conductor program to build resiliency in selected locations in South Lake Tahoe:

For initiative 7.3.3.3, Liberty's initiative aimed at expanding its covered conductor program, Liberty completed less than 40% of its goal (3.75 line-miles vs. a target of 10.1 line-miles, which Liberty subsequently revised to 9.1 line-miles). Liberty did not provide documentation to determine whether the 3.75 line-miles completed were for Lake Tahoe locations.

Repairing and replacing assets identified in Liberty's System Survey to strengthen its overall system performance:

In 2020, Liberty began a System Survey initiative which consisted of an asset survey and detailed inspection of all overhead distribution and transmission equipment across Liberty's service territory. Based on this survey, Liberty set out to target aging or failing facilities for replacement. Liberty identified approximately 400 poles needing replacement, and Liberty identified this as a major initiative for 2021⁷⁴ (initiative 7.3.3.6 - Distribution pole replacement and reinforcement). For this initiative, Liberty fell significantly short of its target, replacing 211 poles of the targeted 400 (a 53% completion rate). Liberty reported redirecting resources towards repairing and replacing approximately 175 poles damaged by fire or storm in 2021, all of which were beyond the scope of its WMP planned distribution pole replacement activities.

⁷⁴ Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 74. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

Replacing old oil circuit breakers (OCB) with new vacuum or gas breakers at Liberty substations:

With respect to initiative 7.3.3.2, Liberty's primary initiative aimed at replacing old OCBs, Liberty reported installing only one of the two planned installations for 2021 (a 50% completion rate) and deferring the remainder for 2022.

In addition to the above stated sub-objectives, Liberty also failed to meet other quantitative initiatives relating to Grid Design and System Hardening. The missed targets included installation of automatic reclosers and planned expulsion fuse replacements. From a qualitative perspective, Liberty made some progress on its grid topology improvements, having completed 0.5 line-miles against an unspecified qualitative target, but failed to provide progress updates on its initiatives designed to mitigate impacts to customers during PSPS events.

In light of the discussion above, Energy Safety finds that Liberty did not sufficiently progress its objective to continue grid hardening efforts and expand to include new proactive asset replacement programs and enhanced substation improvements.

5.2.2 Objective 2: Build customer-focused resiliency corridors to aid in mitigating PSPS impacts

Focus on tree removal and fuel reduction activities to improve forest resiliency and reduce the risk of wildfire:

Energy Safety's 2021 SVM Audit of Liberty found that Liberty performed the work required for the vegetation management initiatives in its 2021 WMP Update. In light of this, Liberty generally demonstrated a focus on tree removal and fuel reduction activities during the 2021 compliance period.

Among initiatives aimed at tree removal and management, Liberty's progress was challenging to assess due to unclear targets and inconsistent reporting between its WMP and QIUs. For initiatives 7.3.5.15 and 7.3.5.16, which were aimed at addressing removal or remediation of at-risk species or trees with strike potential, Liberty's WMP targets provided narrative descriptions of the work covered under these initiatives, including completing and employing its Hazard Tree Management Program and Vegetation Threat Procedures. By comparison, its QIU reported the following progress for these initiatives, which differed from its WMP approved targets:

- Initiative 7.3.5.15 - Remediation of 238 at-risk tree species, compared to a target of 230.
- Initiative 7.3.5.16 - Removal of 128 trees with strike potential, compared to a target of 150 trees.

Energy Safety's 2021 SVM Audit found that Liberty met the qualitative aspects of these initiatives, including development of the Hazard Tree Management Program and Vegetation

Threat Procedures.⁷⁵ Additionally, through Data Requests reviewed from the IE ARC, Liberty provided supplemental information supporting completion of its quantitative targets despite their inconsistencies from approved WMP targets.

Conducting a study to develop a comprehensive resiliency program that includes a cost-benefit analysis and demonstrates wildfire and PSPS risk reductions, in conjunction with filing an application supporting the proposed plan with microgrid selected sites:

Liberty's WMP target for initiative 7.3.3.11, aimed at progressing its resiliency corridor, was to file a detailed program portfolio for prioritizing resiliency corridors where customer engagement and outreach is centralized, and resiliency services are targeted to medical baseline/critical customers in 2021. Liberty did not report progress on these qualitative aspects, and instead reported progress against a quantitative target, noting completion of 0.5-line miles of customer-focused resiliency corridors.

Energy Safety found that Liberty did complete its study of microgrids and identified one viable site as one aspect of initiative 7.3.3.3 – Covered conductor installation. Through the WMP Update, Liberty identified the Angora Ridge project as highly feasible for microgrid placement.⁷⁶ In a Data Request response from Liberty, Liberty provided the feasibility studies for four sites. Within these, Liberty described its selection process, and the rationale for why microgrid selection was not feasible for the other three.⁷⁷

In light of the discussion above, Energy Safety finds that Liberty did not sufficiently progress its objective to build customer-focused resiliency corridors to aid in mitigating PSPS impacts.

5.2.3 Objective 3: Utilize FPI tools and other situational risk models to better plan for emergency PSPS events, alleviate customer impacts, and reduce ignition risk due to extreme weather and fuel conditions

Fully integrating situational awareness tools and applications into system operations and monitoring of conditions. Utilize data from weather stations, regional camera networks, and FPI assessments to alert operations of heightened fire risk and communicate to field operations and system control operators to adjust work conditions:

Liberty set out to make improvements to fire risk forecast accuracy including assessment of its FPI model, enhancements to the automated analytics and monitoring system, and other verification efforts (7.3.2.4). In its EC ARC, Liberty reported that it implemented the FPI

⁷⁵ Energy Safety, "2021 Substantial Vegetation Management Audit and Report of Liberty," Mar. 18, 2024. p. 34. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56363&shareable=true>.

⁷⁶ Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 89. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

⁷⁷ Liberty Utilities, "Energy Safety Data Request 151 Response," Mar. 27, 2023. pp. 1-2. Unpublished.

developed in 2020 and used it daily during 2021 fire season to determine forecasted fire weather conditions and inform operational decisions for its field staff during times of higher fire risk.

Moreover, the IE ARC reported that Liberty developed a web-based monitoring and operational support tool to support its monitoring activities.⁷⁸ Additionally, Liberty reported it initiated conversations with consultants offering data analytics solutions to support the aggregation of various data sources and integration of Liberty's Geographic Information System (GIS), Outage Management System (OMS), and Responder database.⁷⁹

In relation to the 2021 sub-objectives, Liberty established four situational awareness goals within its 2021 WMP. Initiative 7.3.2.4 is discussed above. Of the remaining three initiatives, two (7.3.2.1, 7.3.2.2) were to install 10 DFA units and 10 weather stations, of which zero were installed. However, based on IE review comments, Liberty made some progress in site identification and procurement.

The last initiative involved proactive patrols along lines that incorporated weather forecasting analysis (7.3.2.5). Based on documents reviewed by the IE, Liberty demonstrated it mobilized proactive patrols and on-the-ground resources to patrol and assess local conditions during elevated fire risk events.⁸⁰

In light of the discussion above, Energy Safety finds that Liberty sufficiently progressed its objective to utilize FPI tools and other situational risk models to better plan for emergency PSPS events, alleviate customer impacts, and reduce ignition risk due to extreme weather and fuel conditions.

5.2.4 Objective 4: Improve system controls on lines by installing line reclosers to allow for flexibility of operations during high fire risk days and PSPS switching

Installation of fault detection devices, automatic reclosers, SCADA, and sectionalizing equipment to improve overall system operations, flexibility, and customer interruptions:

In 2021, Liberty reported an inability to install its 10 fault detection devices due to the Tamarack and Caldor fires. This is tied to initiative 7.3.2.2 – Continuous monitoring sensors, and no other funded initiatives aimed to install fault devices. Liberty also failed to install one

⁷⁸ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 31. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

⁷⁹ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. pp. 7-8. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>.

⁸⁰ Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," Jul. 15, 2022. p. 33. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>.

of its three planned automatic reclosers/vacuum reclosers with SCADA controls through initiative 7.3.3.9 – Installation of system automation equipment. Lastly, Liberty did not report sufficient progress on its efforts to sectionalize equipment to improve overall system operations.

In light of the discussion above, Energy Safety finds that Liberty did not sufficiently progress its objective to improve system controls on lines by installing line reclosers to allow for flexibility of operations during high fire risk days and PSPS switching.

5.2.5 Objective 5: Utilize LiDAR technology and reporting capabilities to enhance both vegetation and asset inspections to target future remediation work

Establishing a contract for annual LiDAR inspections, completing 100% of LiDAR inspections, and developing a process for generating work based on LiDAR inspections:

Liberty substantially complied with its commitment to inspect its territory with LiDAR as identified in initiative 7.3.5.7 - LiDAR inspections of vegetation around distribution electric lines and equipment. Liberty inspected 701 line-miles out of a targeted 730 (a 96% completion rate). When explaining the 20% under expenditure for this initiative, Liberty reported slight project delays due to smoke and airspace restrictions caused by the Tamarack and Caldor wildfires, which caused a marginal amount of work to be carried over into 2022.

Additionally, with respect to its process for generating work based on LiDAR, Liberty took steps in 2021 to implement quality control assessments of inspection data during post work verification, and implemented a LiDAR work order tracking process.⁸¹

Enhancing communications to improve management of community impacts:

Liberty reported in its 2021 WMP that its external communications team works closely with the Vegetation Management Department to reach customers and the community about its Vegetation Management efforts, and will continue to seek opportunities to enhance communications, notification and education to its external stakeholders.⁸² Through its Stakeholder Cooperation and Community Engagement initiatives (primarily 7.3.10.1), Liberty reported launching a digital ad campaign specific to Wildfire Mitigation and PSPS preparation and awareness, with topics including defensible space, emergency preparedness, medical baseline information, general PSPS information and preparation tips, and communication of PSPS workshops.

⁸¹ Energy Safety, "2021 Substantial Vegetation Management Audit and Report of Liberty," Mar. 18, 2024. p. 21. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56363&shareable=true>.

⁸² Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 106. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf.

As identified in the IE ARC and Energy Safety's SVM Audit and Report, however, Liberty did not provide sufficient context or progress on specific efforts to communicate with stakeholders about its vegetation management efforts.

Improving vegetation risk models for prioritizing activities:

Liberty reported it continued to work with Reax, Liberty's fire science consultant, to develop scope updates to its wildfire risk model and fire risk map and expand the underlying dataset to include statewide outages and ignitions. In early 2021, through its work with Reax, Liberty implemented a circuit analysis to assess tree risk, asset risk, performance risk, and overall circuit risk of wildfire. Though Liberty made progress in early 2021 with respect to its overall risk modeling efforts, Liberty did not identify specific efforts it took during 2021 to improve vegetation risk models for prioritizing activities.

In light of the discussion above, Energy Safety finds that Liberty sufficiently progressed its objective to utilize LiDAR technology and reporting capabilities to enhance both vegetation and asset inspections to target future remediation work.

5.2.6 Objective 6: Enhancements in Vegetation Management work to reduce wildfire risk

Expansion of program for fuel management and slash reduction:

With respect to fuel management and slash reduction, Liberty completed initiative 7.3.5.5 - Fuel management and reduction of "slash" from vegetation management activities, removing 2,119 tons of biomass against a target of 2,100 tons for 2021.

Establishing a contract for QA/QC program and implementing the QA/QC program:

Liberty planned to 1) develop a QA/QC Asset Management and Inspections program under initiative 7.3.4.14 and 2) develop and implement a vegetation management QA/QC program under initiative 7.3.5.13 to ensure that their wildfire mitigation measures were performed at an acceptable level of quality consistently across its footprints and initiatives.

Liberty did not commit to completing their QA/QC program under initiative 7.3.4.14 in the 2021 WMP but aimed to develop it in 2021 and implement it in 2022. The EC ARC and QIU indicated completion of its intended progress for 2021.

Under initiative 7.3.5.13, Liberty developed a QA/QC program to ensure that wildfire mitigation is being performed at a consistent level of quality across Liberty's footprint. As reported by the IE, Liberty began to perform the QA/QC work as described in the WMP and associated documents. Liberty appears to have developed and implemented a QA/QC program for vegetation management mid-year 2021 that should continue to ensure Liberty's wildfire mitigation activities are effectively performed.

In light of the discussion above, Energy Safety finds that Liberty sufficiently progressed its objective to pursue enhancements in vegetation management work to reduce wildfire risk.

5.3 Criterion 3: Wildfire Risk Reduction and Performance

This section considers the performance of Liberty'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 on Ignition Risk Metrics.
- Performed a trend and year-over-year analysis on 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 Liberty's performance relative to these metrics over the 2018 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 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 2018 to 2020.

Liberty's 15 total ignitions in 2021 were an increase from 13 ignitions in 2020 and the average of nine ignitions in the preceding three years. However, normalized ignitions in 2021 remained below the preceding 2018-2020 average.⁸³ Compared only to 2020, however, normalized ignitions saw a 23% increase.

In 2021, Liberty ignitions resulted in more acreage burned (three acres) and value of assets destroyed (\$71,000) than 2020, when both figures were zero. Further, in 2021 Liberty reported zero fatalities, injuries, or structures destroyed as a result of ignitions.

The primary cause of Liberty's ignitions was equipment failures, which comprised over half of 2021 events, followed by vegetation contact. 2021 also saw an increase in object contact ignitions on distribution assets, while transmission assets saw ignitions due to vegetation contact.

⁸³ Ignition data for Liberty was not available for the periods prior to 2018.

In looking at other metrics that also correlate with risk, in 2021, Liberty's normalized wire down events, unplanned outages, and vegetation-caused outages increased across its distribution infrastructure compared to 2020, yet these trends remained well below the 2018-2020 average. In terms of absolute event numbers, wire down events and unplanned outages increased significantly, both in comparison to 2020 as well as the 2015-2020 average.

Regarding PSPS risk, the normalized scope, frequency, and duration of PSPS events in 2021 was zero. Liberty only reported PSPS data in 2018.

5.3.2 Outcome Metric Analysis

Normalized utility-caused ignition levels rose in 2021 compared to 2020 but fell in relation to the previous years' average.

Long-term trends for acreage burned, fatalities, critical infrastructure damage, structure damage, and value of assets destroyed have all decreased or remained at zero compared to 2018.

However, an increase in acreage burned and value of assets destroyed was observed from 2020 to 2021.

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 ignitions are below the historical average, an increase in ignitions was observed from 2020 and 2021. Additionally, an increase in acreage burned and value of assets destroyed was observed from 2020 to 2021, and underscores the importance of effective and timely wildfire mitigation planning and execution.

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

5.4 Criterion 4: Satisfaction of 2021 WMP Update Goals

This section considers whether Liberty 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 Liberty made a good faith effort to comply with its WMP.

Liberty was unsuccessful in completing more than one third of its evaluated initiatives, having met 23 of 36 (64%). These initiatives, when taken together, are intended to have the

effect of lowering the risk of utility-caused ignitions. Liberty substantially missed targets for grid hardening, which constituted 63% of planned expenditure. Covered conductor installation, pole replacements, and fuse installations were areas of quantitative concentration for Liberty that ultimately fell short.

However, Energy Safety also recognizes the challenges imposed on Liberty from the Tamarack and Caldor fires, which impacted the supply chain for material procurement and forced a diversion of expenditure from original plans.

In consideration of these factors, Energy Safety recognizes Liberty's good faith effort to progress on its WMP initiatives all the while managing the impacts of the Tamarack and Caldor fires.

5.5 Criterion 5: Execution, Management, and Documentation

This section considers whether Liberty 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 Liberty'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.

As previously discussed in this ARC, Liberty missed several critical initiative targets in 2021 related to grid hardening. Furthermore, an analysis of Liberty's performance in 2021 revealed numerous issues with data governance, including poor and inaccurate record-keeping. 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 Liberty'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, Liberty had mixed outcomes related to implementation of its 2021 WMP and was unable to meet several of its goals and objectives for the period. It completed 23 of 36 (64%) of its 2021 WMP Update initiatives, including five of the top eight initiatives with the largest allocated expenditure. Liberty also saw a slight increase in ignitions and wildfire risk metrics as compared to 2020.

However, Liberty also made progress on initiatives despite the logistical and physical challenges imposed by the Tamarack and Caldor fires, and was able to meet a majority (64%) of its initiatives.

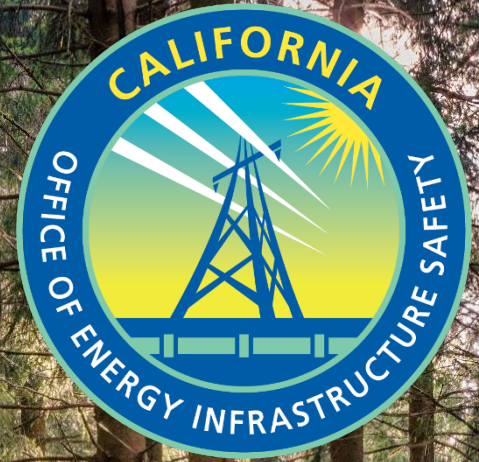
Energy Safety acknowledges that Liberty underwent significant efforts to reduce its wildfire risk, and in some instances, Liberty achieved its objectives and targets. Energy Safety also recognizes that Liberty experienced unexpected setbacks from circumstances caused by the Tamarack and Caldor wildfires. On balance, and given the circumstances of the Tamarack and Caldor fires, Liberty was moderately successful in executing an actionable and adaptive plan for wildfire risk mitigation.

There are several areas where Liberty failed to make significant progress and must improve. Liberty did not meet targets for 13 of 36 initiatives, including critical situational awareness and grid hardening initiatives that were not completed. Other areas for improvement and continued learning include ensuring it is consistent in its documentation and reporting of compliance with its WMP.

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

DATA DRIVEN
FORWARD-THINKING
INNOVATIVE
SAFETY FOCUSED





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1. Appendix A

1.1 Electrical Corporation (EC) ARC

Liberty timely submitted its EC ARC on April 4, 2022. Liberty's EC ARC included the five components required by Energy Safety. The subsections below summarize relevant portions of Liberty'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.

Liberty's 2021 EC ARC provided aggregated, narrative progress updates surrounding each of the 10 major initiative categories. While the narrative updates include references to some targets, Liberty did not evaluate progress against many individual initiative targets in the EC ARC. Further, Liberty's EC ARC did not clearly or consistently provide conclusions on whether Liberty met or missed targets at the individual initiative level.

Liberty summarized the following 2021 activities in its EC ARC. These narrative summaries did not provide an adequate basis for determining if all individual initiative targets were met:

- Risk Assessment and Mapping:¹
 - Completion of Liberty's first-generation wildfire risk model in early 2021, using its circuit risk analysis and fire risk mapping tool to inform planning and prioritize work in WMP initiatives within the Situational Awareness, Grid Design and System Hardening, and Asset Management and Inspections WMP categories.
 - Continued work with Reax, Liberty's fire science consultant, to develop scope updates to its wildfire risk model and fire risk map and expand the underlying dataset to include statewide outages and ignitions.
 - Participation in the Joint Investor-Owned Utilities (IOU) Wildfire Risk Modeling Working Group to understand existing modeling information and approaches among its peer utilities in California.

¹ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

- Situational Awareness and Forecasting:²
 - Liberty reported it did not meet all of its 2021 installation targets related to Situational Awareness and Forecasting but did not provide details on each initiative it did not meet.
 - Implementation of the Fire Potential Index (FPI) developed in 2020, used daily in 2021 during fire season to determine forecasted fire weather conditions and inform operational decisions for its field staff during times of higher fire risk. For each FPI rating, standard operating protocols were followed by field crews on a daily basis.
 - Contracted with Texas A&M University to deploy 10 Distribution Fault Anticipation (DFA) units. In 2021, the 10 units were delivered, circuit/substation locations were selected for five of the 10 units, and additional materials were ordered for their installation.
 - Liberty reported continued use of the 29 weather stations installed across its territory since 2019. While Liberty reported using its weather station network in 2021, it did not explain why it missed its target of 40 weather stations by the end of 2021.
- Grid Design and System Hardening:³
 - Liberty reported it did not meet all of its 2021 installation targets related to Grid Design and System Hardening, and provided context on some, but not all, of the initiatives it did not meet.
 - Liberty reported installation of 3.75 miles of a target 9.1 miles of covered conductor (different from 10.1 target in WMP Update), and granted that it did not meet target in 2021.
 - Liberty reported replacement of 211 distribution poles, 169 of which were General Order (G.O.) 165 Level 2 replacements (against a WMP target of approximately 400 Level 2 poles), and an additional 175 poles which Liberty replaced due to fire or storm damage in 2021. Liberty indicated it would replace the remaining Level 2 poles in 2022.
 - Liberty reported replacement of 867 expulsion fuses, against a target of 1,500 fuse replacements. Liberty reported it resolved supply chain issues that delayed its 2021 expulsion fuse installations by expanding its pool of suppliers.
 - Liberty reported installation of two automatic reclosers, against an original 2021 target of three installations.

² Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. pp. 2-4. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

³ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. pp. 4-5. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

- Liberty reported removal of 37 tree attachments and installation of two animal guards, with the remaining tree attachment removals targeted for 2021 carried over to 2022. Liberty did not establish a clear target for tree attachment removals in its 2021 WMP.
- Asset Management and Inspections:⁴
 - Liberty reported it came close to completing or exceeding all Asset Management and Inspections targets in its 2021 WMP, and provided context on some, but not all, of the initiatives it did not meet.
 - Liberty reported completion of detailed inspections of 210 miles of electric lines.
 - Liberty reported completion of patrol inspections of its entire system.
 - Liberty reported completion of 3,506 intrusive pole inspections and 46 substation inspections.
 - Liberty reported development of an Asset Inspection Quality Assurance/Quality Control (QA/QC) Program, to be implemented in early 2022.
 - Liberty reported completion of Level 2 (G.O. 165) remediations using its wildfire risk map to prioritize repairs.
- Vegetation Management and Inspections:⁵
 - Liberty reported it made progress towards achieving its Vegetation Management program targets in 2021 but did not provide details on each of the initiatives it did not meet. Liberty noted it was not authorized to implement several planned projects due to permitting issues with the United States Forest Service (USFS).
 - Liberty reported completion of 3.4 miles of Forest Resilience Corridor projects in cooperation with the USFS.
 - Liberty reported completion of 178 miles of detailed inspections of vegetation round electric lines and equipment.
 - Liberty reported completion of 701 miles of LiDAR inspections of vegetation around electric lines and equipment.
 - Liberty reported completion of QA/QC of 155 miles of vegetation inspections.
 - Liberty reported completion of 238 miles of vegetation management work to remediate at-risk species.
 - Liberty reported completion of 128 miles of vegetation management work to remove or remediate trees with strike potential.

⁴ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p. 5. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

⁵ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. pp. 5-6. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

- Liberty reported completion of 361 miles of vegetation management work to achieve the minimum clearances set forth in G.O. 95.
- Grid Operations and Operating Protocols:⁶
 - Liberty reported installation of two automatic reclosers, the operation of which allows for remote monitoring and promotes faster outage response to reduce electrical ignitions.
 - Liberty reported implementation of PSPS operations and communications protocols. While Liberty did not initiate any proactive de-energization events in 2021, Liberty launched its Emergency Operations Center (EOC) in September 2021 to begin coordinating response operations in preparation for a potential event when elevated weather events could enact Liberty's PSPS protocol.
- Data Governance:⁷
 - Liberty reported continued progress on Liberty's central data repository for WMP data and metrics.
 - Liberty reported that it initiated conversations with consultants offering data analytics solutions to support the aggregation of various data sources and integration of Liberty's Geographic Information System (GIS), Outage Management System (OMS), and Responder database.
- Resource Allocation Methodology:⁸
 - Liberty reported completion of its first-generation wildfire risk model in early 2021. Liberty reported using its circuit risk analysis and fire risk mapping tool to inform planning and prioritize work on WMP initiatives within the Situational Awareness, Grid Design and System Hardening, and Asset Management and Inspections WMP categories.
- Emergency Planning and Preparedness:⁹
 - Liberty reported that it executed four major activations of Liberty's Emergency Operations Plan, which occurred in response to the July 16, 2021 Tamarack Fire, the August 30, 2021 Caldor Fire, a high-wind event on September 16, 2021, and a winter storm response on December 23, 2021. The high-wind activation event enabled Liberty to test its PSPS operations and communications

⁶ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. pp. 6-7. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

⁷ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. pp. 7-8. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

⁸ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p. 8. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

⁹ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. pp. 8-9. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

protocols, where Liberty reported successful initiation of its customer notification processes.

- Liberty reported that it participated in 23 meetings with various community leaders or public safety partners to share information on Liberty's wildfire mitigation.
- Liberty reported that it conducted four regional PSPS workshops and one PSPS tabletop exercise.
- Liberty reported that it hosted four regional town halls to provide a localized update on wildfire safety work happening in respective communities.
- Liberty reported that it conducted training and updated personnel work procedures in conditions of elevated fire risk for field personnel.
- Liberty reported that it conducted in-office training for existing personnel relating to work procedures in conditions of elevated fire risk.
- Stakeholder Cooperation and Community Engagement:¹⁰
 - Liberty reported that it launched a digital ad campaign specific to Wildfire Mitigation and PSPS preparation and awareness, with topics including defensible space, emergency preparedness, medical baseline information, general PSPS information and preparation tips, and communication of PSPS workshops.
 - Liberty reported that it placed 36 posts on its social media channels, sent five print and digital ads, five bill inserts and direct mailers, and conducted five customer e-mail outreach campaigns across its customer base.
 - Liberty reported that it updated its website to share 211 information and to help customers self-identify as Access and Functional Needs (AFN).
 - Liberty reported continued engagement with Community-Based Organizations (CBOs) and Public Safety Partners (PSP), added positions in 2021 to expand CBO relationship networks and communications channels, among other work.

Liberty did not distinctly discuss its progress or rationale for each missed target, but for those discussed, the general themes from Liberty's reporting describe the following difficulties in completing its 2021 goals:

- The 2021 Caldor and Tamarack fires significantly impacted Liberty's ability to commit resources to WMP initiatives.
- Liberty experienced higher costs than expected overall, both due to the Caldor and Tamarack fires, and due to supply chain issues.

¹⁰ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p. 10. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

- Liberty experienced supply chain-related delays requiring 2021 initiative work to be redistributed to 2022.

Liberty reported the following regarding the degree to which initiative activities reduced ignition probabilities:

- Liberty stated that in 2021, it continued to identify ways to enhance its wildfire prevention and mitigation efforts through expansion of its existing programs, or developing and implementing new programs.¹¹ Liberty's statements were general and did not provide sufficient detail on the degree to which its initiative activities reduced ignition probabilities.
- Across the 10 major initiative categories, Liberty included blanket statements indicating that its overall progress in 2021 across each initiative category "met the risk reduction intent of its 2021 WMP to reduce ignition probabilities and minimize the societal consequences of both wildfires and the mitigations employed to reduce them."¹²

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.

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

Table 1: Liberty's Planned Versus Actual Expenditure by Year (in thousand \$s)¹³

Year	Planned Cost (K\$)	Actual Cost (K\$)	Difference (\$K)
2020	\$30,669	\$33,331	\$2,662
2021	\$52,007	\$33,568	(\$18,439)

¹¹ Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p. 2. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

¹² These statements were included under each of the 10 major initiative categories. Example quoted was for the Risk Assessment and Mapping initiative category. Liberty Utilities, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p. 2. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

¹³ 2020 expenditure was not included in the EC ARC. Liberty, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 18. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf

As identified in Table 1, Liberty expended more than \$18 million less than the planned amount in 2021.

Liberty reported over expenditures for nine initiatives, and under expenditures for 21 of its 36 evaluated WMP initiatives. Liberty reported no planned or actual expenditures for six initiatives.

Below is a summary of Liberty's limited explanations for why it expended less than planned for seven initiatives where targets were not met:

1. Advanced weather monitoring and weather stations (7.3.2.1) – Liberty expended \$20,341 vs. \$120,000 in planned expenditure, while installing zero of 10 targeted weather stations. Liberty noted that the Tamarack and Caldor fire responses and supply chain issues impacted Liberty's ability to meet its installation targets.¹⁴
2. Circuit breaker maintenance and installation to de-energize lines upon detecting a fault (7.3.3.2) – Liberty expended \$87,622 vs. \$500,000 in planned expenditure. Liberty noted that it replaced one oil circuit breaker in 2021 (out of a target of two) and plans to replace three in 2022.
3. Covered conductor installation (7.3.3.3) – Liberty expended \$10,550,330 vs. \$16,564,617 in planned expenditure, while completing 3.75 line-miles of 9.1 targeted line-miles. Liberty reported that the Tamarack and Caldor fires impacted line construction resources. Additionally, Liberty stated that supply chain issues impacted material availability, which delayed the Topaz covered conductor project to 2022, and that the Cathedral covered conductor project was partially completed in 2021 and was scheduled for completion in 2022.¹⁵
4. Distribution pole replacement and reinforcement, including with composite poles (7.3.3.6) – Liberty expended \$5,002,532 vs. \$10,605,000 in planned expenditure, while installing 211 of 400 targeted poles. Liberty reported that the Tamarack and Caldor fires impacted line construction resources and supply chain issues impacted the timing of material availability. Liberty also reported it replaced approximately 175 poles resulting from fire or storm damage in 2021 for which costs were not captured in WMP planned expenditure which impacted available resources.
5. Expulsion fuse replacement (7.3.3.7) – Liberty expended \$599,778 actual vs. \$1,200,000 in planned expenditure, while replacing 867 of 1,500 targeted fuses. Liberty reported that the Tamarack and Caldor fire responses and supply chain issues impacted Liberty's ability to meet installation targets.¹⁶

¹⁴ Liberty, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p.12. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

¹⁵ Liberty, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p.13. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

¹⁶ Liberty, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p.14. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

6. Infrared inspections of distribution electric lines and equipment (7.3.4.4) – Liberty expended \$0 for this initiative in 2021 vs. \$35,000 in planned expenditure. Liberty did not provide an explanation for its lack of funding for this initiative.¹⁷
7. Additional efforts to manage community and environmental impacts (7.3.5.1) – Liberty expended \$649,784 actual vs. \$750,000 in planned expenditure, while treating 3.4 out of 13 line-miles. Liberty reported it was not authorized by the US Forest Service to implement several planned projects in 2021.¹⁸

¹⁷ Liberty, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p.15. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

¹⁸ Liberty, "2021 Wildfire Mitigation Plan Annual Report on Compliance," Apr. 4, 2022. p.16. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52237&shareable=true>

2. Appendix B

2.1 Substantial Vegetation Management Audits

On March 18, 2024, Energy Safety issued its SVM Audit and Audit Report for Liberty. In the SVM Audit, Energy Safety assessed whether Liberty 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 Liberty. Energy Safety found that Liberty performed the work required for the vegetation management initiatives in its 2021 WMP Update, as detailed in Table 14 below. As a result of Liberty completing all the work required, Energy Safety found that Liberty substantially complied with the substantial portion of the vegetation management requirements in its 2021 Wildfire Mitigation Plan Update.

Table 2: Energy Safety's Analysis of Liberty's 2021 WMP Update Vegetation Management Initiatives

2021 WMP Update Initiative Number	2021 WMP Update Initiative Name	Findings
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	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	Performed all required work
7.3.5.6	Improvement of Inspections	Performed all required work

2021 WMP Update Initiative Number	2021 WMP Update Initiative Name	Findings
7.3.5.7	LiDAR Inspections of Vegetation Around Distribution Electric Lines and Equipment	Performed all required work
7.3.5.9	Other Discretionary Inspection of Vegetation Around Distribution Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations	Performed all required work
7.3.5.10	Other Discretionary Inspection of Vegetation Around Transmission Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations	Performed all required work
7.3.5.11	Patrol Inspections of Vegetation Around Distribution Electric Lines and Equipment	Performed all required work
7.3.5.13	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
7.3.5.17	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

2021 WMP Update Initiative Number	2021 WMP Update Initiative Name	Findings
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 Liberty 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 Liberty'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 analyzed Liberty's Q4 2021 QIU submission from March 31, 2021 and Liberty's EC ARC to assess whether Liberty achieved its 2021 WMP Update qualitative and quantitative initiative commitments.

3.1.1 2021 Quarterly Reporting Initiative Performance Analysis

Liberty submitted three of its 2021 QIUs. The QIUs contained 42 initiatives, although of those 42 initiatives, seven initiatives did not correlate to actual existing activities planned or budgeted for in 2021 in Liberty's 2021 WMP Update. Further, Liberty omitted one initiative from the QIUs even though qualitative targets were established by the WMP (further discussed in the sections that follow). Therefore, for the purpose of this analysis and in this ARC generally, Energy Safety evaluates a total of 36 initiatives for Liberty during the 2021 compliance year.

As shown in Table 2 below, of Liberty's 36 total WMP initiatives, 16 contained quantitative targets and 20 contained qualitative or unspecified targets per Liberty's QIU.

Table 3: Liberty Number of 2021 WMP Update Initiatives with Quantitative and Qualitative Targets

Liberty's 2021 WMP Update Initiatives	Numbers
Initiatives with Quantitative Targets	16 ¹⁹

¹⁹ Energy Safety identified 16 initiatives with quantitative targets in Liberty's 2021 WMP Update. However, Liberty's QIU reported 22 initiatives with quantitative targets, some of which were not initiatives listed in the WMP.

Liberty's 2021 WMP Update Initiatives	Numbers
Initiatives with Qualitative or Unspecified Targets	20 ²⁰
Initiatives with Both Quantitative and Qualitative Targets	0
Total Initiatives	36

3.1.2 Initiative Performance Results

Results for Initiatives with Quantitative Targets

Liberty either met, substantially met, or exceeded the targets for five of 16 initiatives (or 31%) with quantitative targets. Table 3 summarizes the initiatives with exclusively quantitative targets. Two of these five initiatives were within 95% of the target. For the purposes of this compliance assessment, Energy Safety considers those two initiatives substantively met. This applies to the following two initiatives:

- Intrusive pole inspections (7.3.4.6), 97% complete
- LiDAR inspections of vegetation around distribution electric lines and equipment (7.3.5.7), 96% complete.

Additionally, due to reporting inconsistencies and insufficient reporting, Energy Safety was unable to determine whether Liberty met its targets for two of 16 initiatives (13%) with quantitative targets. Therefore, when accounting for the initiatives in which Liberty substantively met its target, Energy Safety finds that Liberty did not meet targets for nine of its 16 initiatives with quantitative targets.

Of the nine initiatives for which Liberty failed to meet its quantitative targets in its WMP, its average progress was approximately 63% below its targets.

Table 3 below identifies performance against targets for all quantitative initiatives. Bold target values represent the nine initiatives where Energy Safety finds that the target was not met.

²⁰ Energy Safety identified 20 initiatives with qualitative targets in Liberty's 2021 WMP Update. However, Liberty's QIU reported 13 initiatives with qualitative or unspecified targets and did not include initiative 7.3.3.11 – Mitigation of impact on customers and other residents affected during PSPS events, for which a qualitative target was defined in the WMP.

Table 4: Initiatives with only Quantitative Targets

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.2.1	Advanced weather monitoring and weather stations	Weather Station Installations	10	0	0
7.3.2.2	Continuous monitoring sensors	Target unit unclear ²¹	10 DFA Units ²²	0	0
7.3.3.2	Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	Number of oil circuit breakers (OCBs) replaced ²³	2	Not Reported	1
7.3.3.3	Covered conductor installation	Line-Miles	10.1 ²⁴	3.75	3.75
7.3.3.6	Distribution pole replacement and reinforcement, including with composite poles	Number Poles of Replaced	400	211	211
7.3.3.7	Expulsion fuse replacement	Number of Fuses Installed	1,500	867	867

²¹ Liberty's target was unclear for this initiative. In the WMP narrative for initiative 7.3.2.2, Liberty states it plans to install eight AlertWildfire cameras in 2021. In Table 7-1 of the WMP, it notes the goal for the period is to "Complete all 2021 DFA Deployments." Energy Safety relied on the 10-unit target from page 127 of the WMP, which aligns to the QIU target of 10 DFA Units Installed.

²² Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 127. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf

²³ The QIU lists this initiative, but does not provide a target unit, target, or any progress on this initiative.

²⁴ Within the QIU and EC ARC, this target was changed to 9.1. There is no supplemental documentation to support this change. Despite the change, target was not met.

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.3.9	Installation of system automation equipment	Automatic Reclosers Installed	3	2	2
7.3.4.1	Detailed inspections of distribution electric lines and equipment ²⁵	Line-Miles Inspected	Approximately 20% of the system ²⁶	210	210
7.3.4.6	Intrusive pole inspections	Poles Inspected	3,600	3,506	3,506
7.3.4.11	Patrol inspections of distribution electric lines and equipment ²⁷	Line-Miles Inspected	Liberty pledged to complete all patrols in 2021 and 2022 in accordance with the schedules outlined in G.O. 165. ²⁸	2,050	2,050

²⁵ Energy Safety could not conclude whether the quantitative target for this initiative was met.

²⁶ Liberty provided a non-specific target for initiative 7.3.4.1. While the WMP Update states Liberty inspects approximately 20% of its distribution system each year, the QIU states this goal is 52 line-miles of inspections. According to the IE review, Liberty later corrected their goal from 210 to 328 miles, but a goal of 210 was not mentioned in any of Liberty's plans. Finally, the IE was only able to verify Liberty completed 59.8 line-miles. Given the significant inconsistencies across sources, and that these sources do not remediate the WMP's target of around 20% of lines inspected, Energy Safety finds Liberty's reporting to be insufficiently clear to support a conclusion. Guidehouse, Inc. & NV5, "Final Independent Evaluator ARC," July 15, 2022. pp. 22-23. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52692&shareable=true>

²⁷ Energy Safety could not conclude whether the quantitative target for this initiative was met.

²⁸ Liberty provided a non-specific target for initiative 7.3.4.11. The WMP Update states Liberty preforms annual urban patrol inspections and patrol inspections every two years in rural areas. It also states Liberty will complete all 2021 patrols in accordance with G.O. 165. The QIU retroactively provides a goal of 2,050-line miles inspected. According to the IE review, the goal was 2,050 line-miles, however, the IE was only able to verify that Liberty completed 662.3 line-miles. While Liberty self-reports meeting this goal, Energy Safety was unable to conclude whether this quantitative target encompassed "all patrols." Given the significant inconsistencies across sources, and that these sources do not remediate the WMP's target, Energy Safety finds Liberty's reporting insufficiently clear to support a conclusion.

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	Substations Inspected	Inspect 13 substations quarterly ²⁹	46	46
7.3.5.1	Additional efforts to manage community and environmental impacts	Line-Miles Treated	13³⁰	3.4	3.4
7.3.5.5	Fuel management and reduction of “slash” from vegetation management activities	Tons of Biomass Removed	2,100	2,118.7	2,119
7.3.5.7	LiDAR inspections of vegetation around distribution electric lines and equipment	Line-Miles Inspected	712 ³¹	701.4	701

²⁹ The QIU states the target as 46 inspections. While inspecting 13 substations quarterly would be 52 annual inspections, Liberty notes that a few substations are inspected annually due to lack of year-round access. This aligns with the QIU's report of 46 inspections, which is 11 inspected quarterly and 2 inspected annually. Liberty Utilities, “2021 Wildfire Mitigation Plan Update,” Mar. 5, 2021. p. 103. [Online]. Available:

https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf

³⁰ Liberty's 2021 WMP Update states the target of this initiative in Table 5-2 as treating 13 line-miles for forest resiliency corridor development. The QIU confirms this goal and reports a miss of only treating 3.4 line-miles. However, the WMP also provides narrative descriptions of the work covered under this initiative including the development of communication plans to educate communities of planned VM work, maintaining working relationships with state and federal protection agencies, and coordinating with surrounding land managers to complete environmental and cultural surveys. Energy Safety's 2021 SVM Audit and Report of Liberty conducted an analysis of these processes and verified that the qualitative work established under this initiative was complete. However, given Liberty's overall target miss, this initiative is considered not met. Energy Safety, “2021 Substantial Vegetation Management Audit and Report of Liberty,” Mar. 18, 2024. pp. 6-12. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56363&shareable=true>

³¹ The QIU states the target as 730 line-miles vs. 712 line-miles per Table 5-2 of the 2021 WMP Update. Despite the differences in targets, Energy Safety finds Liberty substantially compliant given it fell within 5% of the target in either instance.

Initiative Number	Initiative Name	Target Units	WMP Target	Reported Actual Progress in QIU	Reported Actual Progress in EC ARC
7.3.5.11	Patrol inspections of vegetation around distribution electric lines and equipment	Line-Miles Inspected	150 ³²	179	Not Reported
7.3.6.1	Automatic Recloser Operations	Number of Reclosers Installed or Upgraded	3³³	In Progress	2

Results for Initiatives with Qualitative Targets

In its 2021 Quarter 4 QIU, Liberty reported that it had completed four out of 13 (31%) of its 2021 WMP Update initiatives with qualitative targets. However, Energy Safety's analysis determined that there were reporting issues with various initiatives, including initiatives where reported target units or target actual data in the WMP did not match the data presented in the QIU, QN, and/or the EC ARC. Based on Energy Safety's review against the stated WMP targets, Energy Safety concludes that Liberty failed to complete the targets for one of 20 initiatives (or 5%) with qualitative targets. Additionally, Energy Safety was unable to determine compliance for one of 20 initiatives (or 5%) due to discrepancies in documentation of planned targets between Liberty's 2021 WMP Update and the Q4 QIU which were not supported with an appropriate change order.

The initiative for which Energy Safety determined that the target was not met, as defined by Liberty in its 2021 WMP Update, is described below:

- Infrared inspections of distribution electric lines and equipment (7.3.4.4) – For this initiative, Liberty established in its WMP that it would develop a Request for Proposal (RFP) for an infrared inspection in 2021. However, the QIU did not report a target for this initiative and there were no costs incurred or any additional explanations

³² The 2021 WMP Update did not provide a clear target. It states that Liberty will continue to complete these inspections, after mentioning its 150 miles of planned inspections in 2020. The QIU states the goal as 150 miles. Despite the inconsistency, Liberty reports completion of 179 line-miles, which exceeds either target. Additionally, Energy Safety's SVM Audit for Liberty provided further evidence that Liberty completed activities consistent with its WMP. Energy Safety, "2021 Substantial Vegetation Management Audit and Report of Liberty," Mar. 18, 2024. p. 26. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=56363&shareable=true>

³³ The QIU target for this initiative was qualitative and did not provide target units, with a stated qualitative goal of completing the pilot program. Despite the QIU inconsistency, Liberty's reported progress via the EC ARC indicates the target was not met.

provided to support Liberty's progress. Energy Safety finds that Liberty did not meet the target for this initiative.

Energy Safety was unable to determine whether the qualitative target for initiative 7.3.3.11 (Mitigation of impact on customers and other residents affected during PSPS event) was met. In the Liberty 2021 WMP Update, initiative 7.3.3.11 refers to Section 5.2 of the WMP. However, Liberty did not report work on initiative 7.3.3.11 in the QIU or EC ARC. Within Section 5.2, the WMP established a general qualitative target, but it was not sufficiently clear about the components of this target apply to which initiatives as various aspects could be applied to each. Liberty generally stated in this section that it intended to file a detailed program portfolio for prioritizing resiliency corridors where customer engagement and outreach is centralized and providing targeted resiliency services to medical baseline/critical customers in 2021. Within Table 5-1 of WMP Section 5.2, Liberty also refers to goals of continuing to work on forest resiliency corridors and continuing to study resiliency programs that include a cost benefit analysis. Given the overall lack of clarity in targets, and an unclear understanding of Liberty's intention, Energy Safety was unable to determine whether the qualitative target for this initiative was met.

3.1.3 2021 Grid Design and System Hardening Initiatives Analysis

Liberty's Grid Design and System Hardening initiatives represented 63% of Liberty's total planned spend for its 2021 WMP Update.³⁴

Energy Safety assessed whether Liberty met its qualitative and quantitative commitments in its 2021 WMP Update for its four Grid Design and System Hardening (Section 7.3.3)³⁵ initiatives that appear in the top 10 initiatives for planned expenditure in Liberty's 2021 WMP Update.

Energy Safety found that Liberty did not meet its quantitative targets for three out of the four Grid Design and System Hardening initiative commitments reviewed, as detailed in Table 5 below.

³⁴ Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. p. 18. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf

³⁵ Liberty Utilities, "2021 Wildfire Mitigation Plan Update," Mar. 5, 2021. pp. 86-97. [Online]. Available: https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/liberty_2021_wmp.pdf

Table 5: Energy Safety's Analysis of Liberty'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
7.3.3.3: Covered Conductor Installation	10.1 Line Miles	3.75 Line Miles	N/A	N/A	Data request, QIU, EC ARC	Commitment not met
7.3.3.6: Distribution Pole Replacement and Reinforcement	400 Level 2 Poles Replaced in HFTD 2 Areas	211 Level 2 Poles Replaced	N/A	N/A	Data request, QIU, EC ARC	Commitment not met
7.3.3.7: Expulsion Fuse Replacement	1,500 Expulsion Fuses Replaced	867 Expulsion Fuses Replaced	N/A	N/A	Data request, QIU, EC ARC,	Commitment not met

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
7.3.3.12: Other Corrective Action	N/A	N/A	<p>Liberty will install green jacket technology animal guards on substation equipment.</p> <p>Employees will meet with measuring crew to obtain high-accuracy dimensions of the substation equipment planned to be insulated.</p>	<p>Liberty lists and provides Job Close Memo PDF documentation for the various substation equipment it installed green jacket technology animal guards on in 2021.</p> <p>Liberty provided documentation that supports it obtained the high accuracy dimensions of the equipment planned to be insulated in 2021.</p>	Data request	Commitment met

3.1.4 2021 Asset Management and Inspections Initiatives Analysis

Energy Safety did not conduct a separate analysis of Liberty's Asset Management and Inspection initiatives in this part of the ARC as Liberty did not have any Asset Management and Inspections initiatives among those initiatives within the top 10 for planned

expenditure. Please see the analysis in subsection 3.1.2 above for a discussion of Energy Safety's overall analysis of Liberty's initiatives, including Asset Management and Inspection initiatives.

4. Appendix D

4.1 Ignition Risk and Outcomes Metrics

Energy Safety assessed the performance Liberty'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 metric³⁶ 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 Liberty's 2021 WMP Update its February 1, 2022, QDR submission.

4.1.1 Ignition Risk Metrics

Energy Safety reviewed the ignition risk metrics Liberty reported in its February 1, 2022, QDR submission,³⁷ 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

³⁶ 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. 32. [Online]. Available:

<https://energysafety.ca.gov/wp-content/uploads/docs/wmp-2021/attachment-2.2-to-wsd-011-2021-wmp-guidelines-template.pdf>

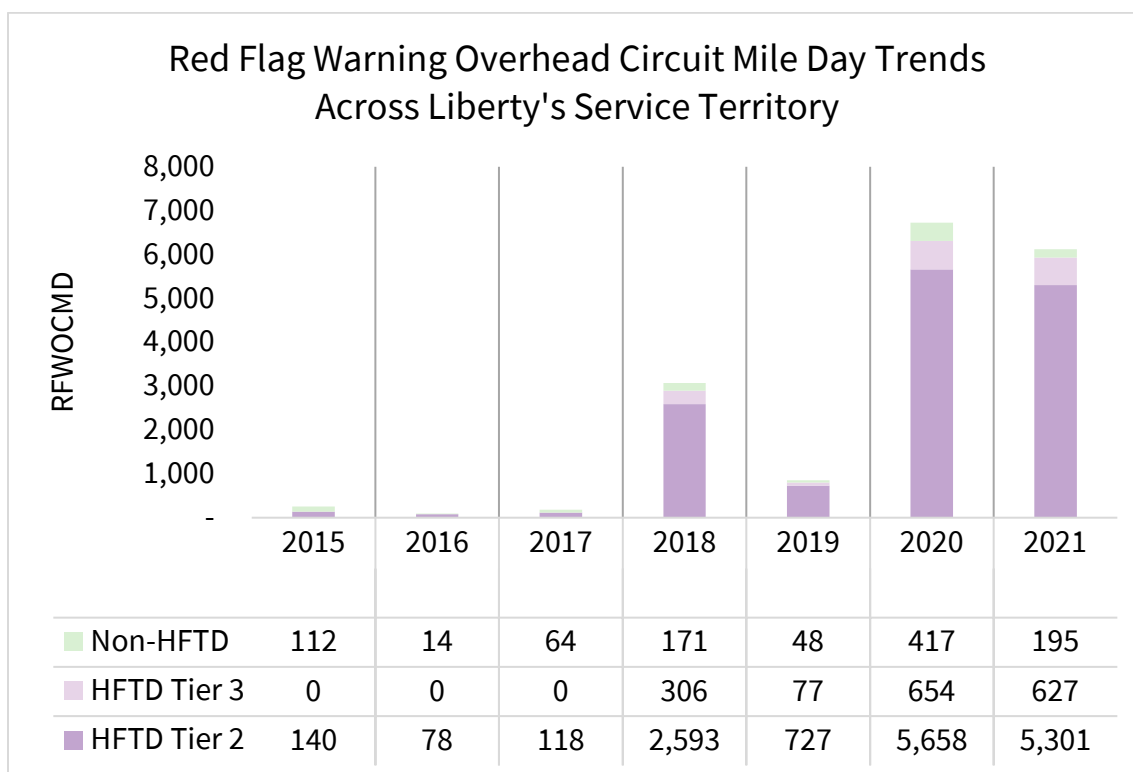
³⁷ Liberty Utilities, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.1, Table 7.2)," Feb. 1, 2022. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51991&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, Liberty’s territory has experienced a significant increase in extreme fire weather event exposure since 2015. The period of 2015-2017 marked Liberty’s lowest periods of exposure. Overall, the RFWOCMD in Liberty’s service area remained elevated in 2021, with only a slight decrease compared to 2020’s peak.

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



4.1.2 Ignition Data Analysis

Liberty reported 15 ignition events in 2021, all in HFTD Tier 2 areas. This is the highest annual number of ignitions reported by Liberty since 2018, and is significantly higher than the three-year average from 2018-2020.

Figure 2, below, shows historic ignition data normalized by RFWOCMD. Liberty experienced a spike in normalized ignitions in 2019. Normalized ignitions in 2021 remained below the preceding 2018-2020 average (4,848) but saw a 23% increase when compared to 2020. Liberty

reported no ignition data from 2015-2017, explaining the absence of data for those years in Figure 2 below.

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

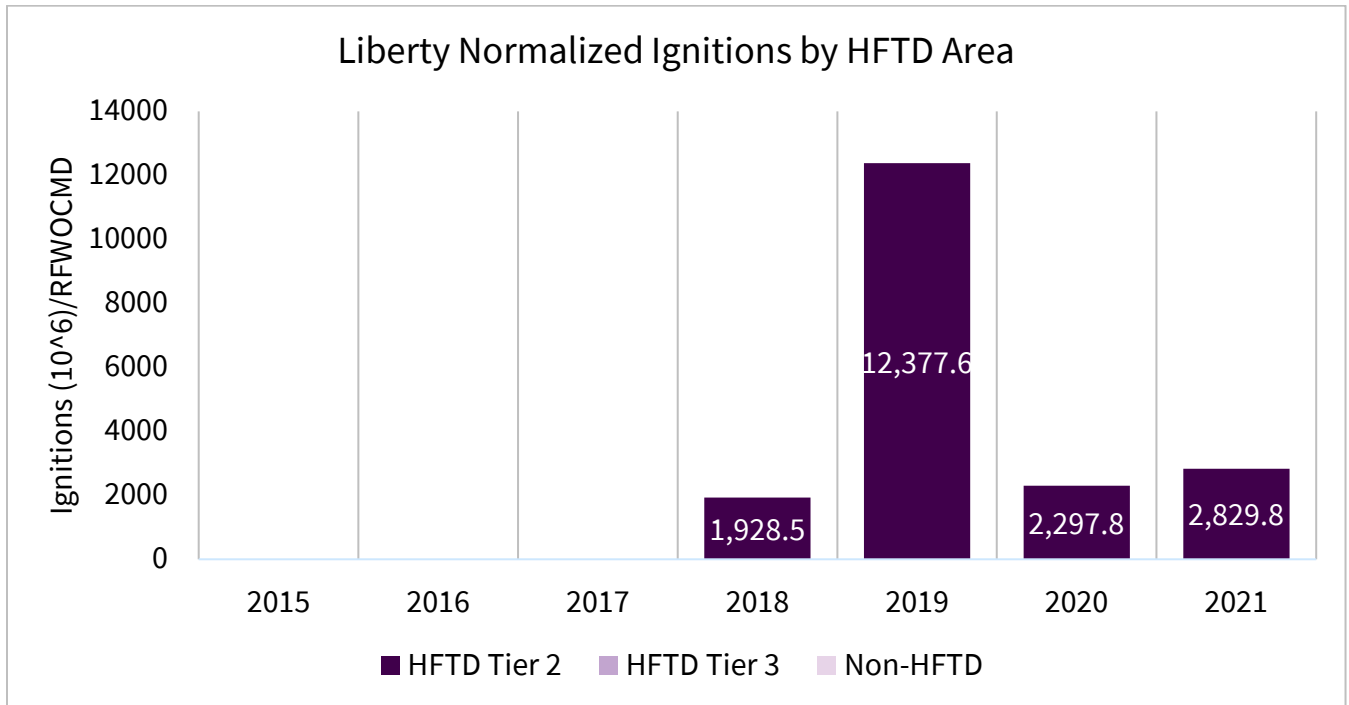


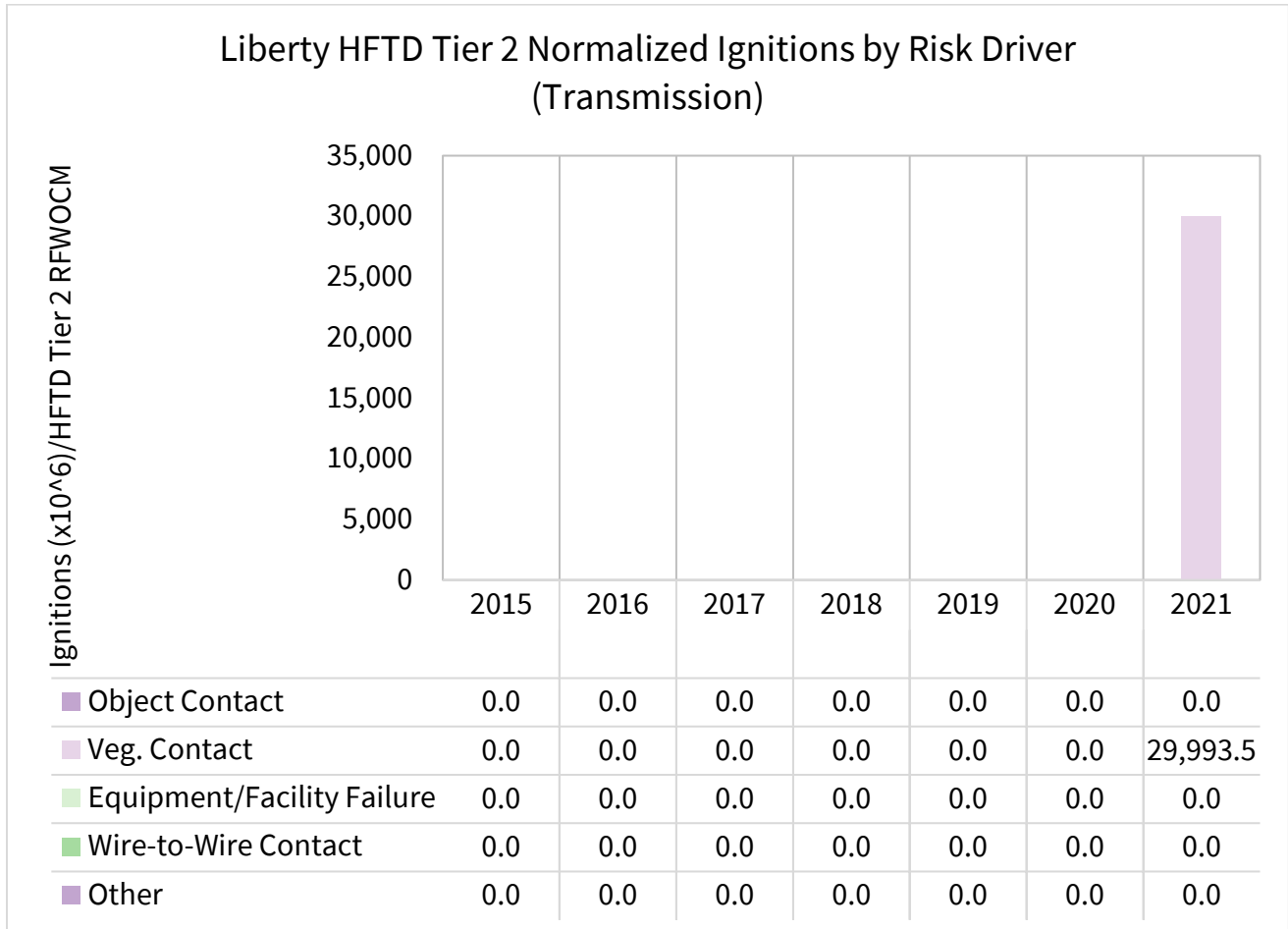
Table 6 below shows a time series of Liberty’s utility-related ignitions since 2018. Liberty reported no ignition data from 2015-2017.

Table 6: Liberty Utility Related Ignitions (2018-2021)³⁸

Description	2018	2019	2020	2021	3 Year Avg (2018-2020)
Distribution	5	9	13	13	9
Transmission	0	0	0	2	0
Total	5	9	13	15	9

³⁸ Liberty, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.2)," Feb. 1, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51991&shareable=true>

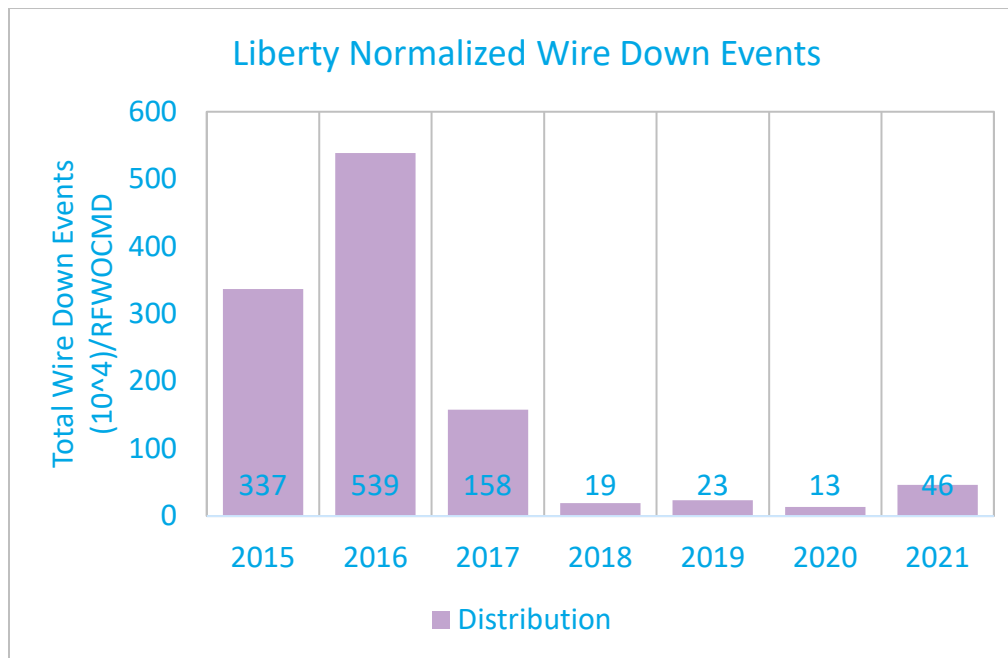
Figure 4: Liberty Transmission Ignitions in Tier 2 HFTD Areas from 2015-2021 Normalized by RFWOCMD Tier 2 Only Broken out by Risk Driver



4.1.2.1 Wire Down Data Analysis

QDR Table 7.1, metrics 1 through 16 include data on Liberty’s distribution and transmission wire-down events from 2015 to 2021, which are normalized for RFWOCMD and plotted below in Figure 5. Overall, normalized wire-down events reported by Liberty show a decreasing trend since 2016. In 2021, normalized events were nearly four times lower than the preceding six-year average (181.5). However, 2021 did show a notable increase in events, at nearly four times the number of events that occurred in 2020. All of Liberty’s reported wire down events are associated with its distribution assets.

Figure 5: Liberty Total Wire Down Events from 2015-2021 Normalized by RFWOCMD



While Figure 5 above depicts an overall decreasing trend in normalized events, Table 7 below shows that the absolute count of wire-down events in 2021 has increased significantly, at nearly five times the preceding six-year average. 2021 accounts for 45% of all events reported since 2015.

Table 7: Liberty Wire Down Events (2015-2021)³⁹

Description	2015	2016	2017	2018	2019	2020	2021	6 Year Avg (2015-2020)
Distribution	9	5	3	6	2	9	28	6
Transmission	0	0	0	0	0	0	0	0
Total	9	5	3	6	2	9	28	6

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 6 below depicts Liberty's outages

³⁹ Liberty Utilities, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.1)," Feb. 1, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51991&shareable=true>

normalized for RFWOCMD, and Table 8 shows a time series of Liberty outages since 2015. No data on outages for transmission assets was reported and is therefore not plotted below.

Figure 6: Outages from 2015-2021 Normalized by RFWOCMD

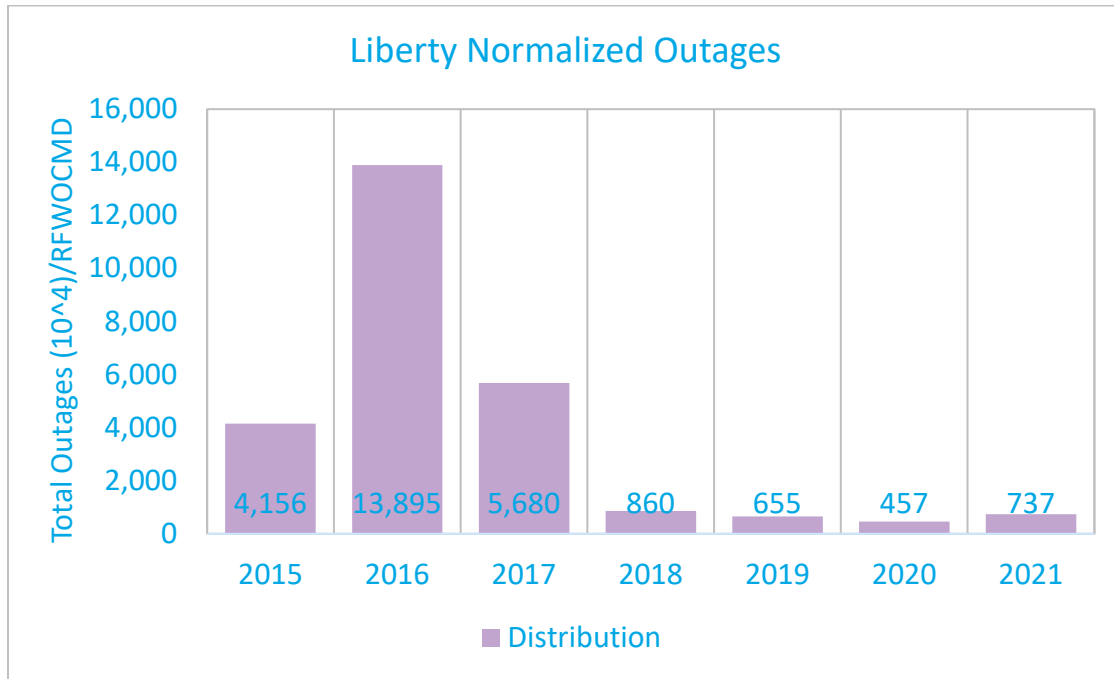


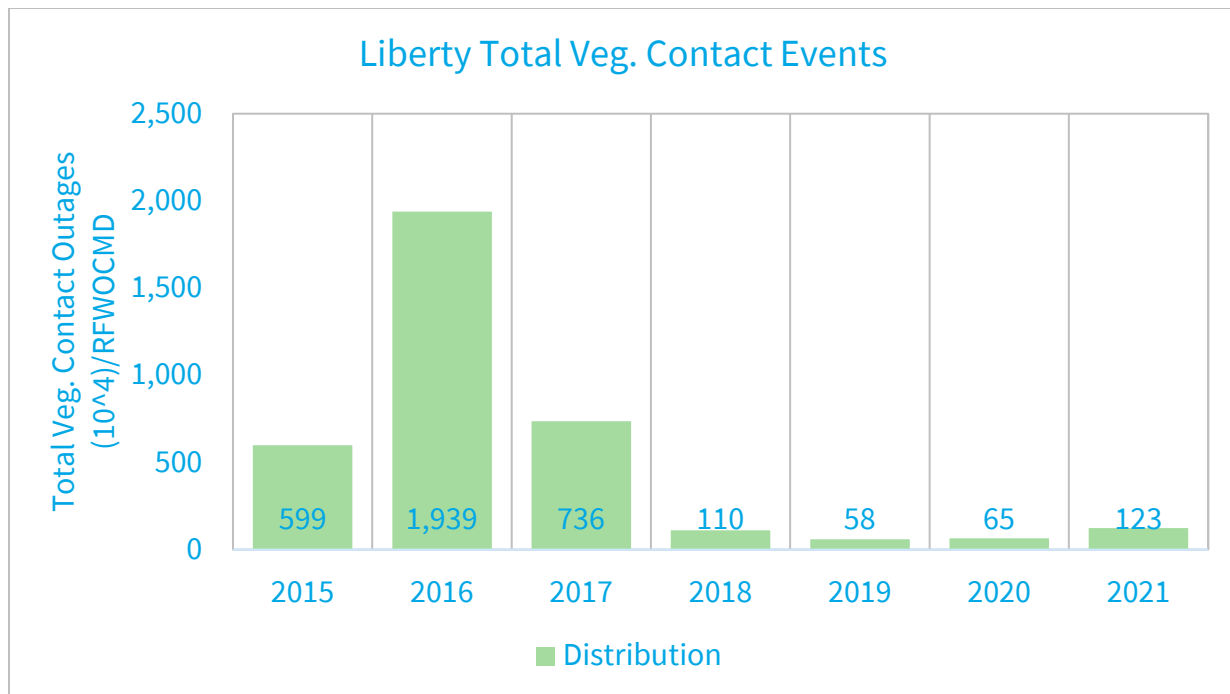
Table 8: Liberty Outages (2015-2021)⁴⁰

Description	2015	2016	2017	2018	2019	2020	2021	6 Year Avg (2015-2020)
Distribution	111	129	108	265	56	309	444	163

Liberty reported outages from vegetation contact, normalized for RFWOCMD, are depicted in Figure 7 below. Liberty reported no events from transmission infrastructure.

⁴⁰ Liberty Utilities, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 7.1)," Feb. 1, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51991&shareable=true>

Figure 7: Outages from Vegetation Contacts for 2015-2020 Normalized by RFWOCMD



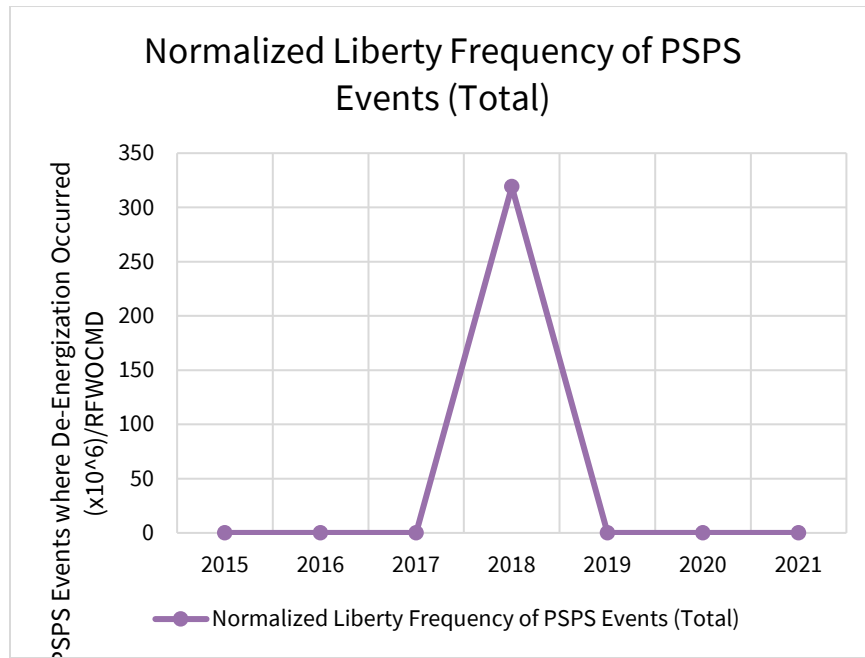
4.1.2.3 PSPS Data Analysis

While useful as a wildfire mitigation measure, PSPS events carry their own impacts on customers. As such, electrical corporations must strive to minimize 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.

Liberty reported data on its use of PSPS events and other PSPS metrics, to which Energy Safety applied the RFWOCMD metric as a normalizing parameter. Shown in Figure 8 are the number of normalized PSPS events, for which Liberty has only reported one event in 2018. Liberty did not deploy PSPS from 2019 through 2021. Given the lack of PSPS events implemented by Liberty, Energy Safety did not identify any trends from this analysis.

Figure 9 depicts the normalized scope of PSPS events (with scope being measured in number of circuit events), which again only includes 2018 data. A similar observation is noted in Figure 10, the normalized duration of PSPS events. Liberty did not report any values for the normalized critical infrastructure impacted in these periods.

Figure 8: Normalized Frequency of PSPS Events (2015-2021)⁴¹



⁴¹ Liberty Utilities, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 3)," Feb. 1, 2022. [Online]. Available: <https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51991&shareable=true>

Figure 9: Normalized Scope of PSPS Events (2015-2021)⁴²

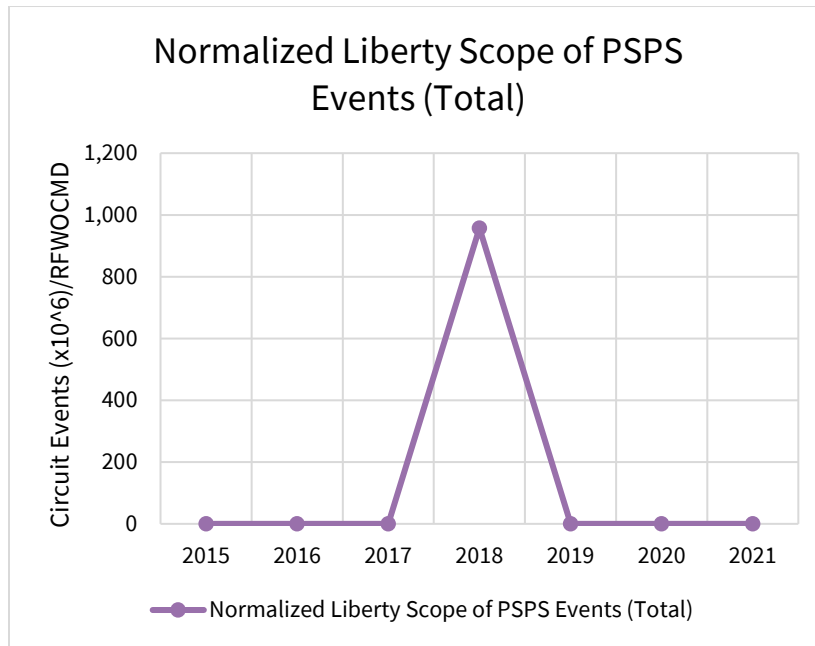
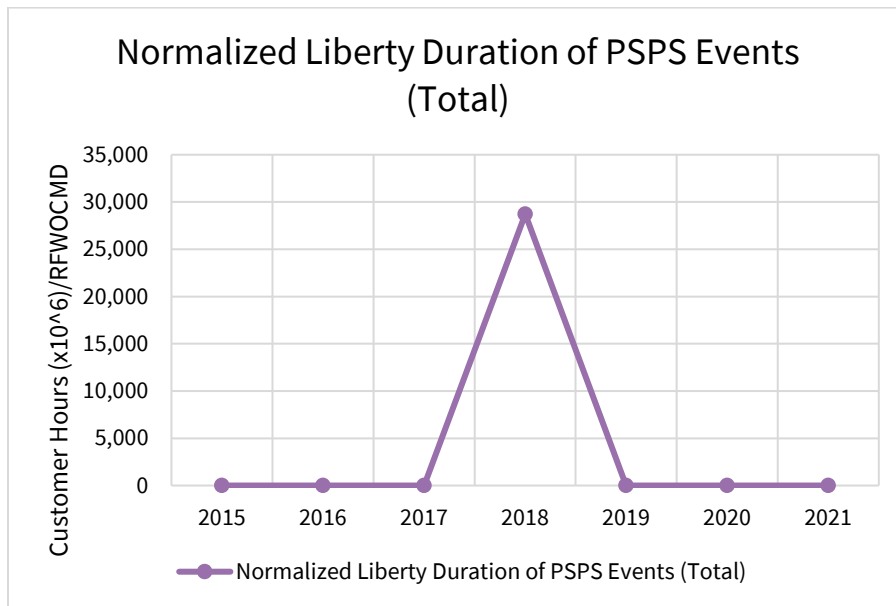


Figure 10: Normalized Duration of PSPS Events⁴³



⁴² Liberty Utilities, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 3)," Feb. 1, 2022. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51991&shareable=true>

⁴³ Liberty Utilities, "Wildfire Safety Division Attachment 2.3 Wildfire Mitigation Plan Quarterly Report - Q4 2021 (Table 3)," Feb. 1, 2022. [Online]. Available:

<https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=51991&shareable=true>

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 9 below provides Energy Safety's assessment of Liberty's short and long-term outcome patterns.

Table 9: Liberty Outcome Metrics Observations

Description
Short-Term Patterns, 2020 - 2021
<ul style="list-style-type: none"> • Acreage burned by Liberty-ignited wildfire increased from zero to three. • Value of assets destroyed by Liberty-ignited wildfires increased from \$0 to \$71,000.
Long-Term Patterns, 2015 - 2021
<ul style="list-style-type: none"> • Acreage burned increased from 2015 to 2016 where it peaked at 196 acres burned. Since 2017, acreage burned has remained at zero with exception of 2019 (one acre) and 2021 (three acres). • No fatalities or injuries were reported in 2021, along with the previous six years. • No critical infrastructure structure damage was reported in 2021, along with the previous six years. • No structures were reported destroyed in 2021. Liberty has only reported structure destruction once, with 18 structures destroyed in 2016. • The total value of destroyed assets from Liberty-ignited wildfires peaked in 2016 (\$315,649) with the most recent period reporting the second highest value at \$71,000.