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April 6, 2023

Lucy Morgans
Program Manager, Electric Safety Policy Division
Office of Energy Infrastructure Safety
715 P Street, 20th Floor
Sacramento, CA 95814

SUBJECT: SCE's Submission of Errata for the 2023-2025 Wildfire Mitigation Plan

Dear Program Manager Morgans:

SCE appreciates the opportunity to submit errata to its 2023-2025 Wildfire Mitigation Plan (WMP).

In the table beginning on the following page, SCE has provided all errors known at this time (i.e., both substantive and non-substantive). In cases in which SCE was uncertain whether an error should be considered substantive, SCE has labeled the error as substantive. SCE notes that none of the errors identified in this submission materially impact the content or meaning of its WMP.

SCE has provided redlines to address each error. The redlines are based on the WMP submitted to the Office of Energy Infrastructure Safety on March 27, 2023 (version "R0").

SCE's WMP and associated materials are available at: https://www.sce.com/safety/wild-fire-mitigation.

SCE appreciates the opportunity to submit these corrections. If you have questions, or require additional information, please contact me at connor.flanigan@sce.com.

Sincerely,

//s//
Connor Flanigan
Managing Director, State Regulatory Operations
connor.flanigan@sce.com

TABLE OF ERRATA

Substantive? (Y/N)	Section	Table or Figure (if applicable)	Page Number(s)	Description of error and correction
N	6.2.1.2	Table SCE 6-04 - Circuit Miles Per IWMS Risk Tranche	114	In the pre-submission WMP, the miles in Table SCE 6-04 did not match equivalent miles in Table 7-2. In correcting non-substantive errors in the WMP submitted to OEIS on March 27, SCE changed the miles in Table 7-2 to match Table SCE 6-04. This was incorrect; instead, Table SCE 6-04 should have been corrected to match Table 7-2.
N	7.1.3	Table 7-2 - List of Prioritized Areas in SCE's Service Area Based on Overall Utility Risk	189-190	See explanation above regarding Table SCE 6-04. Additionally, SCE has corrected calculation errors for the Overall Utility Risk column.
N	7.2.2.3	Table 7-4 - Summary of Risk Reduction for Top-Risk Circuits	223-227	SCE has corrected data and calculation errors in this table.
N	8.1.1.2	Table 8-3 - Grid Design, Operations, and Maintenance Targets by Year	238	SCE has corrected calculation errors for risk data associated with initiatives SH-1 and SH-2.
Y	8.1.1.2 & 8.1.3.5	Table 8-4 - Asset Inspections Targets by Year	243 & 299	SCE has corrected the scope for IN-3 from 5,100 to 5,300 circuit miles per year based on an updated methodology for summing total miles inspected.
Y	8.1.1.2	Table 8-4 - Asset Inspections Targets by Year	244	The 2023 targets for IN-8 for Q2 and Q3 were transposed into the incorrect quarter, and the 2023 target for Q4 was incorrectly redundant with the Q2 target.

Substantive? (Y/N)	Section	Table or Figure (if applicable)	Page Number(s)	Description of error and correction
Y	8.2.1.2	Table 8-15 – Vegetation Inspections Targets	379-380	SCE erroneously included non-HFRA grid/circuit counts in its targets for VM-1, VM-4, VM-7, and VM-8 for 2023, 2024, and 2025. VM-1 operates only in HFRA, while VM-4, VM-7, and VM-8 operate in both HFRA and non-HFRA. SCE has corrected these counts and associated risk data (where necessary).
Y	8.2.1.2	Table 8-15 – Vegetations Inspection Targets	379-380	SCE clarifies its measurement framework for inspections with an additional note for VM-1 and VM-4 for 2024 and 2025, and for VM-7 and VM-8 for 2023, 2024, and 2025.
N	8.2.1.2	Table 8-15 – Vegetations Inspection Targets	379-380	For VM-1 and VM-4, SCE incorrectly described the work area as “grids.” “Grids” should be replaced with “grids/circuits” to reflect work performed across distribution and transmission lines. For VM-7, SCE incorrectly described the work area as “grids” for 2025; here, “grids” should be replaced with “grids/circuits.” For VM-8, SCE incorrectly described the work area as “grids.” “Grids” should be replaced with “circuits.”
N	8.2.2.1	N/A	394	SCE clarifies that inspections related to distribution assets for Hazard Tree Management Program, Dead and Dying Tree Removal, and Routine Line Clearing program, rather than for all programs, will be conducted on a grid basis in 2023.
N	8.2.2.2	N/A	394	SCE clarifies in footnote #202 that in 2023, SCE’s HTMP program for distribution assets, and not for transmission assets, will be inspected on a grid basis.

Substantive? (Y/N)	Section	Table or Figure (if applicable)	Page Number(s)	Description of error and correction
N	8.2.2.3	N/A	397	SCE clarifies that all Hazard Severity Zones and HFRA tiers 2 and 3 have been mapped to “grid/circuit” or “grids/circuits” and not “grid” or “grids.”
N	8.3.3.1.2.1	N/A	470	SCE has added clarifying information regarding Transmission Open Phase Detection.
N	8.3.3.1.2.2	N/A	472	SCE has added clarifying information regarding Distribution Open Phase Detection.
N	8.3.3.1.2.3	N/A	473	SCE has added clarifying information regarding High Impedance Relays.

Redlines of the 3/27/23 WMP to address errors identified in the table above begin on the following page.

Table SCE 6-04 - Circuit Miles Per IWMS Risk Tranche[86]

IWMS Risk Tranche	Approximate Circuit Miles
Severe Risk Areas	~~2,925~~ 2,950
High Consequence Areas	~~4,275~~ 4,400
Other HFRA	~~2,400~~ 2,250
Total	9,600

Stage 2: Review & Revise

With exception of CEFC identification, the first stage of IWMS is automated and reliant upon the completeness, granularity, and accuracy of data sources. While valuable as a directional starting point, human judgment is needed to evaluate the results of the risk analysis.

Accordingly, SCE performs further due diligence by reviewing the output using SCE's inspection photos, geographic information system (GIS), and Google Maps or Street Views with subject matter experts such as engineers and fire science specialists. These deep dives allow SCE's employees to virtually "walk the line" to determine whether a segment is appropriately categorized.

This stage of the IWMS is time-consuming and labor intensive, as SCE personnel review hundreds of circuit miles of overhead distribution lines. SCE has already started scoping mitigations for areas that have undergone Review & Revise and expects to complete this stage for all HFRA by the second quarter of 2023.

During these reviews, SCE looks for the presence of risk drivers, including but not limited to, heavy trees, long span, local fuel regime, prevailing wind direction and intensity, topography (slope and terrain complexity), local fire ecology, local road accessibility, and existing mitigations (e.g., covered conductor). SCE then makes the determination to either keep the designation as prescribed by the model or recommend an alternate designation as appropriate.

Figure SCE 6-14 below shows an example of a 100% match between the initial output (left picture) and detailed SME review (right picture). This location was identified a Severe Risk Area due to the exceptionally high Technosylva wildfire consequence. A fire starting in this location has the potential to grow larger than 10,000 acres in size in the first eight hours.

SME review confirmed the location of the overhead lines in relation to the dry, heavy vegetation in the area, topography, and potential winds could lead to a fire of this size.

Figure SCE 6-15 shows one of many Google Maps screenshots of the location that SMEs reviewed, confirming the designation as a Severe Risk Area.[87]

[86] Note that the review of unhardened miles for each area/tranche is in progress. Therefore, the total miles provided in the table are not finalized and are subject to change.

[87] Figure SCE 6-15 is a screenshot of the location marked with the teal circle in SCE 6-14.

○ Communities of Elevated Fire Concern (CEFCs) – smaller geographic areas where terrain and other factors could lead to smaller, fast-moving fires threatening populated locations under benign (normal) weather conditions.
High Consequence Area Criteria
○ Not identified in meeting Severe Risk Area criteria. ○ Destructive fire consequence – Acres burned consequence between 300 and 10,000 over an 8-hour unsuppressed model simulation. ○ Locations subject to PSPS events in which covered conductor has not been fully deployed.
Other HFRA Criteria
○ Not identified in meeting Severe Risk Area or High Consequence criteria. ○ Small fire consequence - Acres burned consequence less than 300 over an 8-hour unsuppressed model simulation.

Review and Revision: A team of SMEs reviews, refines, and revises the output of the Initial Risk Categorization, by reviewing unhardened circuit segments with additional tools such as inspection photos and maps to determine if local conditions change the initial categorization. This process is ongoing and expected to be complete in Q1 2024.

List of Prioritized Areas: Below is SCE's list that identifies, describes, and prioritizes areas of its service territory at risk from wildfire for potential mitigation initiatives based solely on overall utility risk, including the associated risk drivers.

Table 7-2 - List of Prioritized Areas in SCE's Service Area Based on Overall Utility Risk

Priority	Area/ Tranche	Description[110]	Overall Utility Risk[111]	Associated Risk Drivers
1	Severe Risk Areas	Locations with egress challenges, areas that fires have historically propagated towards (burn-in buffer), CEFCs, areas with extreme high winds, and segments with extreme Technosylva consequence (i.e., greater than 10,000 acres in eight hours with simulated wildfire ignition consequence). ~1,520 of ~~2,925~~ 2,950 total miles already hardened*	~~52.08 (0.019 risk per HFRA mile)~~ 52.41 (0.021 risk per HFRA mile)	• EFF • CFO Other • CFO Veg
2	High Consequence Areas	Segments not identified as a Severe Risk Areas are and in which simulated wildfire ignitions resulted in a wildfire consequence of 300-acres-or greater	~~64.85 (0.016 risk per HFRA mile)~~	• EFF • CFO Other • CFO Veg

[110] Hardened miles as of 12/31/2022 for all risk tranches. SCE may revise this data to reflect adjustments based on comparing completed work orders to mapping data, and also pending completion of SCE's Review & Revise stage of IWMS.

[111] MARS units as of January 2023. Reflects mitigations and hardening in place.

Priority	Area/ Tranche	Description[110]	Overall Utility Risk[111]	Associated Risk Drivers
		in eight hours, as well as those circuits which have the potential to be frequently impacted by PSPS events. ~2,285 of ~~4,275~~ 4,400 total miles already hardened*	64.86 (0.017 risk per HFRA mile)	
3	Other HFRA	Encompasses SCE overhead distribution lines that are located in HFRA but that are neither High Consequence Areas nor Severe Risk Areas. ~605 of ~~2,400~~ 2,250 total miles already hardened*	~~6.37 (0.003 risk per HFRA mile)~~ 6.03 (0.003 risk per HFRA mile)	• EFF • CFO Other • CFO Veg

* "Hardened miles" refer to the miles of bare overhead lines replaced with covered conductor or underground cable and the associated infrastructure to complete those installation (i.e., FR pole as part of covered conductor installation). In some cases, alternatives such as REFCL, aerial bundled cable, or spacer cable are utilized.

Feasibility Review: After a part of SCE's system is assigned a mitigation, it undergoes a feasibility review. The extent of the review depends on the mitigation, some mitigations require more intensive reviews than others. For example, replacing a vertical switch may not require more than one person to determine feasibility. On the other hand, a group of planners and engineers review TUG scope for feasibility, as there are multiple situations (terrain, ROWs over private property, customer meter locations, etc.) that can influence a TUG project. Further, when planning and scheduling work, SCE considers issues such as engineering and crew resource availability (both internal and external), permitting, logistical viability of potential mitigations, operational needs, local grid configurations, potential for customer outage fatigue, work bundling and other factors.

7.1.4 Mitigation Selection Process

After the electrical corporation creates a list of top-risk contributing circuits/segments/spans (Section 6.4.2) and prioritized areas based on overall utility risk (Section 7.1.3), the electrical corporation must then identify potential mitigation strategies. It must also evaluate the benefits and drawbacks of each strategy at different scales of application (e.g., circuit, circuit segment, system-wide). In this section of the WMP, the electrical corporation must provide the basis for its decisions regarding which mitigation initiatives to pursue. It must also document how it develops, evaluates, and selects mitigation initiatives.

The electrical corporation should consider appropriate mitigation initiatives depending on the local conditions and setting and the risk components that create the high-risk conditions. There may be a wide variety of potential mitigation initiatives, such as:

- *Engineering changes to grid design*
- *Discretionary inspection and/or maintenance of existing assets*
- *Vegetation clearances beyond minimum regulatory requirements*

SCE 2023-2025 WMP Corrections
Table 7-4 - Summary of Risk Reduction for Top-Risk Circuits

Circuit	Jan. 1, 2023 Overall utility risk	Jan. 1, 2023 – Dec. 31, 2023 Mitigation Initiatives	Jan. 1, 2024 Overall utility risk	Jan. 1, 2024 Overall utility risk (Updated)	change	Jan. 1, 2024 – Dec. 31, 2024 Mitigation Initiatives	Jan. 1, 2024 – Dec. 31, 2024 Mitigation Initiatives (updated)	Jan. 1, 2025 Overall utility risk	Jan. 1, 2025 Overall utility risk (Updated)	change	Jan. 1, 2025 – Dec. 31, 2025 Mitigation Initiatives	Jan. 1, 2026 Overall utility risk	Jan. 1, 2026 Overall utility risk (Updated)	change
SHOVEL	3.3369	Covered Conductor, REFCL, Branch Line Fuses Risk-Informed Inspections and Remediations and Vegetation Management	1.2013	1.2043	0.0030	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	1.2013	1.2042	0.0029	Covered Conductor, Vibration Damper, Risk-Informed Inspections and Remediations and Vegetation Management	1.2002	1.1929	-0.0073
KENO	2.6917	Covered Conductor, REFCL, Branch Line Fuses Risk-Informed Inspections and Remediations and Vegetation Management	0.8060	0.8053	-0.0007	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.8060	0.8053	-0.0007	Risk-Informed Inspections and Remediations and Vegetation Management	0.8060	0.8020	-0.0039
PIONEERTOWN	2.6574	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	2.2198	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	2.2198	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	2.2143	2.1544	-0.0599
ERSKINE	2.6531	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	1.4525	*No Change*	*No Change*	Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	1.4503	*No Change*	*No Change*	Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	1.4500	*No Change*	*No Change*
GAMBLER	2.3818	Covered Conductor, REFCL, Branch Line Fuses Risk-Informed Inspections and Remediations and Vegetation Management	0.6062	0.6075	0.0013	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.6062	0.6075	0.0013	Risk-Informed Inspections and Remediations and Vegetation Management	0.6062	0.6071	0.0009
LASKER	2.0455	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.9112	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.9112	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.9112	0.9078	-0.0034
MUSTANG	2.0347	Covered Conductor, Branch Line Fuses, Vertical Switches Risk-Informed Inspections and Remediations and Vegetation Management	1.1127	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	1.0281	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	1.0281	1.0214	-0.0067
STORES	1.5872	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	1.5740	1.5752	0.0013	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	1.5740	1.5752	0.0013	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	1.5727	1.5686	-0.0040
POPPET FLATS	1.4363	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	1.0987	1.1715	0.0728	Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	1.0961	1.1689	0.0728	Risk-Informed Inspections and Remediations and Vegetation Management	1.0961	1.1678	0.0717
STONEMAN	1.1219	Covered Conductor, Branch Line Fuses, Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	0.5577	0.5823	0.0246	Vibration Damper, Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.5575	0.5822	0.0246	REFCL, Risk-Informed Inspections and Remediations and Vegetation Management	0.2879	0.2981	0.0102
MULHOLLAND	1.1129	Covered Conductor, Undergrounding, Branch Line Fuses, Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	0.5415	0.6732	0.1317	Undergrounding, Vibration Damper, Long Span Initiative Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.4959	0.5433	0.0474	Covered Conductor, Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	0.4959	0.5433	0.0474
SCHMIDT	1.0296	Covered Conductor, Undergrounding, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.7085	0.6651	-0.0434	Risk-Informed Inspections and Remediations and Vegetation Management	Undergrounding, Risk-Informed Inspections and Remediations and Vegetation Management	0.7085	0.6609	-0.0476	Risk-Informed Inspections and Remediations and Vegetation Management	0.7085	0.6609	-0.0476
RAYBURN	0.9666	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.4636	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.4636	*No Change*	*No Change*	REFCL, Risk-Informed Inspections and Remediations and Vegetation Management	0.2397	0.2398	0.0001
PICONI	0.8079	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.3524	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.3524	*No Change*	*No Change*	Vibration Damper, Risk-Informed Inspections and Remediations and Vegetation Management	0.3517	0.3432	-0.0085
PASCAL	0.7527	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.3579	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.3579	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.3579	*No Change*	*No Change*
BURNT MOUNTAIN	0.6542	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.6503	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.6438	0.6346	-0.0093	Risk-Informed Inspections and Remediations and Vegetation Management	0.6438	0.6346	-0.0093
TUDOR	0.5491	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.5473	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.5473	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	0.5234	*No Change*	*No Change*

Circuit	Jan. 1, 2023 Overall utility risk	Jan. 1, 2023 – Dec. 31, 2023 Mitigation Initiatives	Jan. 1, 2024 Overall utility risk	Jan. 1, 2024 Overall utility risk (Updated)	change	Jan. 1, 2024 – Dec. 31, 2024 Mitigation Initiatives	Jan. 1, 2024 – Dec. 31, 2024 Mitigation Initiatives (updated)	Jan. 1, 2025 Overall utility risk	Jan. 1, 2025 Overall utility risk (Updated)	change	Jan. 1, 2025 – Dec. 31, 2025 Mitigation Initiatives	Jan. 1, 2026 Overall utility risk	Jan. 1, 2026 Overall utility risk (Updated)	change
ACROBAT	0.5427	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.2448	0.2531	0.0083	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.2442	0.2531	0.0089	REFCL, Risk-Informed Inspections and Remediations and Vegetation Management	0.1048	0.1128	0.0081
IDA	0.5036	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.3919	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.3919	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.3919	0.3906	-0.0013
LOTTO	0.4354	Covered Conductor, REFCL, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.2610	0.2755	0.0145	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.1966	0.2018	0.0053	Risk-Informed Inspections and Remediations and Vegetation Management	0.1966	0.2013	0.0047
BLACKFOOT	0.2768	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.2559	0.2611	0.0051	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.2559	0.2611	0.0051	Risk-Informed Inspections and Remediations and Vegetation Management	0.2559	0.2573	0.0013
LUISENO	0.2686	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.1386	0.1642	0.0256	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.1386	0.16416837	0.0256	Vibration Damper, Risk-Informed Inspections and Remediations and Vegetation Management	0.1379	0.1458	0.0079
PELONA	0.1954	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.1953	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.1953	*No Change*	*No Change*	REFCL, Risk-Informed Inspections and Remediations and Vegetation Management	0.0907	*No Change*	*No Change*
RHODA	0.1923	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.0609	*No Change*	*No Change*	Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0607	0.0607	-0.0001	Risk-Informed Inspections and Remediations and Vegetation Management	0.0607	0.0606	-0.0001
PURCHASE	0.1710	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.1490	0.1705	0.0215	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.1490	0.1705	0.0215	Risk-Informed Inspections and Remediations and Vegetation Management	0.1490	0.1705	0.0215
TRIUNFO	0.1463	Undergrounding, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.1409	*No Change*	*No Change*	Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.1365	0.1365	-0.0001	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	0.1361	0.1361	-0.0001
PERRIS	0.1409	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.1200	0.1397	0.0197	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.1200	0.1397	0.0197	Risk-Informed Inspections and Remediations and Vegetation Management	0.1200	0.1384	0.0183
DINELY	0.1348	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.1340	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.1340	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.1340	*No Change*	*No Change*
KUFFEL	0.1327	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.1322	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0713	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.0713	*No Change*	*No Change*
ROTEC	0.1208	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.1197	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0831	0.0809	-0.0022	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	0.0823	0.0801	-0.0022
PHEASANT	0.1139	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.1121	0.1137	0.0017	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.1121	0.1137	0.0017	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	0.1108	0.1123	0.0015
QUINBY	0.0996	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	0.0343	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0338	0.0339	0.0001	REFCL, Risk-Informed Inspections and Remediations and Vegetation Management	0.0157	0.0176	0.0019
PINEWOOD	0.0976	Risk-Informed Inspections and Remediations and Vegetation Management	0.0976	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0976	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	0.0909	*No Change*	*No Change*
BIANCO	0.0861	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.0859	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0859	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	0.0840	*No Change*	*No Change*
MUTUAL	0.0853	Covered Conductor, Branch Line Fuses, Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	0.0446	0.0494	0.0048	Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0441	0.0489	0.0048	Risk-Informed Inspections and Remediations and Vegetation Management	0.0441	0.0489	0.0048
ROMERO	0.0807	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.0352	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0352	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.0352	*No Change*	*No Change*

SCE 2023-2025 WMP Corrections
Table 7-4 - Summary of Risk Reduction for Top-Risk Circuits

Circuit	*Jan. 1, 2023 Overall utility risk*	*Jan. 1, 2023 – Dec. 31, 2023 Mitigation Initiatives*	*Jan. 1, 2024 Overall utility risk*	*Jan. 1, 2024 Overall utility risk (Updated)*	*change*	*Jan. 1, 2024 – Dec. 31, 2024 Mitigation Initiatives*	*Jan. 1, 2024 – Dec. 31, 2024 Mitigation Initiatives (updated)*	*Jan. 1, 2025 Overall utility risk*	*Jan. 1, 2025 Overall utility risk (Updated)*	*change*	*Jan. 1, 2025 – Dec. 31, 2025 Mitigation Initiatives*	*Jan. 1, 2026 Overall utility risk*	*Jan. 1, 2026 Overall utility risk (Updated)*	*change*
BODKIN	0.0770	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.0739	0.0768	0.0030	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0739	0.0768	0.0030	REFCL, Risk-Informed Inspections and Remediations and Vegetation Management	0.0404	0.0416	0.0013
DICE	0.0738	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	0.0441	0.0655	0.0215	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0441	0.0655	0.0215	Risk-Informed Inspections and Remediations and Vegetation Management	0.0441	0.0655	0.0215
TONTO	0.0660	Covered Conductor, Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.0296	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0296	*No Change*	*No Change*	REFCL, Risk-Informed Inspections and Remediations and Vegetation Management	0.0097	0.0110	0.0014
AMETHYST	0.0655	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.0636	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0636	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.0636	*No Change*	*No Change*
LA GRANDE	0.0628	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.0623	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0537	0.0524	-0.0013	Risk-Informed Inspections and Remediations and Vegetation Management	0.0537	0.0510	-0.0027
DOLORES	0.0571	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.0569	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0464	0.0444	-0.0020	Risk-Informed Inspections and Remediations and Vegetation Management	0.0464	0.0444	-0.0020
WAITE	0.0510	Risk-Informed Inspections and Remediations and Vegetation Management	0.0510	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0510	*No Change*	*No Change*	Covered Conductor, REFCL, Risk-Informed Inspections and Remediations and Vegetation Management	0.0307	*No Change*	*No Change*
CRAWFORD	0.0306	Risk-Informed Inspections and Remediations and Vegetation Management	0.0306	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0306	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.0306	*No Change*	*No Change*
SILVA	0.0221	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	0.0090	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0090	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.0090	*No Change*	*No Change*
PARCO	0.0171	Branch Line Fuses, Risk-Informed Inspections and Remediations and Vegetation Management	0.0169	*No Change*	*No Change*	Covered Conductor, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0089	0.0099	0.0010	Risk-Informed Inspections and Remediations and Vegetation Management	0.0089	*No Change*	*No Change*
LIMITED	0.0027	Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	0.0022	*No Change*	*No Change*	Covered Conductor, Long Span Initiative, Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0006	0.0007	0.0001	Risk-Informed Inspections and Remediations and Vegetation Management	0.0006	0.0007	0.0001
CHUMASH	0.0027	Risk-Informed Inspections and Remediations and Vegetation Management	0.0027	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	*No Change*	0.0027	*No Change*	*No Change*	Risk-Informed Inspections and Remediations and Vegetation Management	0.0027	*No Change*	*No Change*

Table 8-3 - Grid Design, Operations, and Maintenance Targets by Year

Initiative Activity	Tracking ID	2023 Target & Unit	x% Risk Impact 2023 (Unit /HFRA)	% in SRA/HCA 2023	2024 Target & Unit	x% Risk Impact 2024 (Unit /HFRA)	% in SRA/HCA 2024	2025 Target & Unit	x% Risk Impact 2025 (Unit /HFRA)	% in SRA/HCA 2025	Method of Verification
Covered Conductor	SH-1	Install **1,100** circuit miles of covered conductor in SCE's HFRA SCE will strive to install up to as many as **1,200** circuit miles of covered conductor in SCE's HFRA, subject to resource constraints and other execution risks	51% / ~~21%~~ 20%	91%	Install **1,050** circuit miles of covered conductor in SCE's HFRA SCE will strive to install up to as many as **1,200** circuit miles of covered conductor in SCE's HFRA, subject to resource constraints and other execution risks	53%/~~7%~~ 6%	82%	Install **700** circuit miles of covered conductor in SCE's HFRA SCE will strive to install up to as many as **850** circuit miles of covered conductor in SCE's HFRA, subject to resource constraints and other execution risks	~~53%/3%~~ 51%/4%	~~79%~~ 80%	Listing of completed Work Orders
Underground-ing Overhead Conductor	SH-2	Convert **11** circuit miles of overhead to underground in SCE's HFRA	~~97%~~/.22% 98%	100%	Convert **16** circuit miles of overhead to underground in SCE's HFRA SCE will strive to convert up to **20** miles of overhead to underground in SCE's HFRA, subject to resource constraints and other execution risks	98%/~~.37%~~ .64%	100%	Convert **48** circuit miles of overhead to underground in SCE's HFRA SCE will strive to convert up to **60** miles of overhead to underground in SCE's HFRA, subject to resource constraints and other execution risks	~~97%~~/.9% 98%	~~98%~~ 100%	Listing of completed Work Orders
Branch Line Protection strategy	SH-4	Install or replace fusing at **500** fuse locations that serve HFRA circuitry SCE will strive to install or replace fusing at up to **570** locations that serve HFRA circuitry, subject to resource constraints and other execution risks	7%/.31%	97%	N/A – Sunsetting in 2023, further fuse replacements will be completed via opportunity work	N/A	N/A	N/A – Sunsetting in 2023, further fuse replacements will be completed via opportunity work	N/A	N/A	Listing of completed Work Orders

Initiative Activity	Tracking ID	Target End of Q2 2023 & Unit	Target End of Q3 2023 & Unit	End of Year Target 2023 & Unit	x% Risk Impact 2023	% in SRA/HC 2023	Target End of Q2 2024 & Unit	Target End of Q3 2024 & Unit	End of Year Target 2024 & Unit	x% Risk Impact 2024	% in SRA/HC 2023	Target 2025 & Unit	x% Risk Impact 2025	% in SRA/ HC 2025	Method of Verification
				and emergent risks identified during the fire season (e.g., AOC)					compliance due structures in HFRA and emergent risks identified during the fire season (e.g., AOC)			and emergent risks identified during the fire season (e.g., AOC)			
Infrared Inspection of Energized Overhead Distribution Facilities and Equipment	IN-3	2,295	~~5,100~~ 5,300	Inspect ~~**5,100**~~ 5,300 distribution overhead circuit miles in HFRA	60%	77%	2,295	~~5,100~~ 5,300	Inspect ~~**5,100**~~ distribution overhead circuit miles in HFRA	63%	77%	Inspect ~~**5,100**~~ 5,300 distribution overhead circuit miles in HFRA	60%	77%	Listing of completed Work Orders
Infrared Inspection, Corona Scanning, and High-Definition Imagery of Energized Overhead Transmission Facilities and Equipment	IN-4	600	900	Inspect **1,000** transmission overhead circuit miles in HFRA	72%	81%	600	900	Inspect 1,000 transmission overhead circuit miles in HFRA	50%	80%	Inspect 1,000 transmission overhead circuit miles in HFRA	59%	81%	Listing of completed Work Orders
Generation High Fire Risk-Informed Inspections and Remediation	IN-5	55	170	Inspect **170** generation related assets in HFRA SCE will strive to inspect **200** generation related assets in HFRA,	17%	N/A	52	160	Inspect **160** generation related assets in HFRA SCE will strive to inspect **190** generation related assets in HFRA, subject to	29%	N/A	Inspect **170** generation related assets in HFRA SCE will strive to inspect **200** generation related assets in HFRA, subject to resource	14%	N/A	Listing of completed Work Orders

SCE will continue to perform IR scans on overhead distribution equipment throughout SCE's territory within HFRA from 2023 through 2025. Circuits within Tier 3 (extreme fire threat) and Tier 2 (elevated fire threat) are grouped by district and then prioritized by relative risk. Risk for each district is calculated by multiplying the POI by the Technosylva consequence, and then aggregating the risk scores of each structure in the district. District risk scores are ranked highest to lowest and are then scheduled accordingly. Since 2023 is the first year of the two-year cycle, SCE also incorporated IWMS in the prioritization analysis. The districts selected to be inspected annually were not only the highest risk, but also had large portions of their circuits that were within High Consequence Areas and Severe Risk Areas. From 2023 to 2025, following this methodology, SCE plans to inspect a total of approximately ~~5,100~~ 5,300 distribution circuit miles annually within HFRA; the circuits in the highest risk districts will be inspected annually and the remaining circuits every other year.

If the inspection program is schedule-based, the electrical corporation must explain how it uses risk prioritization in the scheduling of the inspection program to target high-risk areas. If the electrical corporation does not use risk prioritization in the scheduling of the inspection program, it must explain why.

SCE inspects the highest risk districts annually with the remaining scope approximately being split evenly and inspected every two years. The inspections are optimized and scheduled around the summer months to best recognize peak loading and temperatures of SCE's equipment.

Accomplishments, Roadblocks, and Updates

In this section, the electrical corporation must discuss:

- *Noteworthy accomplishments for the inspection program since the last WMP submission*

For 2022, the second year of the two-year cycle, SCE inspected the remaining overhead distribution circuit miles in HFRA which included 4,408 miles.

- *Roadblocks the electrical corporation has encountered while implementing the inspection program and how the electrical corporation has addressed the roadblocks*

SCE encountered issues relating to truck access (e.g., rural areas, secured areas, etc.) which were circumvented by performing the inspections from a helicopter. In addition, due to seasonal constraints (e.g., inclement weather) some inspections were re-scheduled to a different period of the year.

- *Changes/updates to the inspection program since the last WMP submission including known future plans (beyond the current year) and new/novel strategies the electrical corporation may implement in the next 5 years (e.g., references to and strategies from pilot projects and research)*

Since SCE's 2022 WMP Update, changes have included optimizing the program schedule to balance risk coverage across each year while distributing mileage equivalently across both years. Additionally, in 2023, SCE will plan and schedule the distribution infrared inspections, where operationally efficient, to be conducted May through September to take advantage of expected higher loading during those months which could result in better conditions to identify hot spots.

Note: Due to space constraints, this page only shows the row that has corrections.

Table 8-4 - Asset Inspections Targets by Year

Initiative Activity	Tracking ID	Target End of Q2 2023 & Unit	Target End of Q3 2023 & Unit	End of Year Target 2023 & Unit	x% Risk Impact 2023	% in SRA/ HC 2023	Target End of Q2 2024 & Unit	Target End of Q3 2024 & Unit	End of Year Target 2024 & Unit	x% Risk Impact 2024	% in SRA/HC 2023	Target 2025 & Unit	x% Risk Impact 2025	% in SRA/ HC 2025	Method of Verification
Inspection and Maintenance Tools	IN-8	~~Complete detailed design to migrate the distribution ground inspection application to the single digital platform~~ Develop use cases to use in build of proof of concept (POC) to prove out design direction	~~Develop use cases to use in build of proof of concept (POC) to prove out design direction~~ Develop POC of key design elements to validate design direction	~~Develop the detailed design to migrate the distribution ground inspection application to the single digital platform~~ Complete detailed design to migrate the distribution ground inspection application to the single digital platform	N/A	N/A	Conduct requirements gathering for incorporating distribution ground and InspectCam capabilities in single digital platform	Initiate solution analysis for incorporating distribution ground and InspectCam capabilities in single digital platform	Execute the approved designs / recommendations for incorporating distribution ground and InspectCam capabilities into single digital platform	N/A	N/A	Monitor utilization of inspection work management tool, and make enhancements as necessary	N/A	N/A	Completed user acceptance testing, screenshots of tool enhancements

*To inform trimming prescriptions in the January to December calendar year, with inspections occurring as early as November 1 in the prior year.

Table 8-15 - Vegetation Inspections Targets

Initiative Activity	Tracking ID	Target End of Q2 2023 & Unit	Target End of Q3 2023 & Unit	End of Year Target 2023 & Unit	x% Risk Impact 2023	% in SRA/HCA 2023	Target End of Q2 2024 & Unit	Target End of Q3 2024 & Unit	End of Year Target 2024 & Unit	x% Risk Impact 2024	% in SRA/HCA 2024	Target 2025 & Unit	x% Risk Impact 2025	% in SRA/HCA 2025	Method of Verification
Hazard Tree Management Program (HTMP)	VM-1	~~305~~ 260	~~447~~ 350	Inspect ~~**550** 412~~ grids/ circuits and prescribe mitigation for hazardous trees with strike potential within those grids in SCE's HFRA	83%	~~70%~~ 88%	~~241~~ 250	~~354~~ 358	Inspect ~~**420** 408~~ grids/circuits and prescribe mitigation for hazardous trees with strike potential within those grids in SCE's HFRA* (see insertion text above)	70%	~~70%~~ 88%	Inspect ~~**460** 440~~ grids/ circuits and prescribe mitigation for hazardous trees with strike potential within those grids in SCE's HFRA* (see insertion text above) Note: 2025 schedule will be developed at the circuit /span level, subject to change	63%	70%	Tracking of year-to-date completed grids/circuits for inspection and mitigation
Structure Brushing	VM-2	29,870	63,700	Inspect and clear (where clearance is needed) **63,700** structures,* with the exception of structures for which there are customer access or environmental constraints SCE will strive to inspect and clear (where clearance is needed) **135,200** structures,* with the exception of structures for which there are customer access or environmental constraints * These structures are in addition to poles subject to PRC 4292	62%	84%	29,870	63,700	Inspect and clear (where clearance is needed) **63,700** structures,* with the exception of structures for which there are customer access or environmental constraints SCE will strive to inspect and clear (where clearance is needed) **135,200** structures,* with the exception of structures for which there are customer access or environmental constraints * These structures are in addition to poles subject to PRC 4292	62%	84%	Inspect and clear (where clearance is needed) **63,700** structures,* with the exception of structures for which there are customer access or environmental constraints SCE will strive to inspect and clear (where clearance is needed) **135,200** structures,* with the exception of structures for which there are customer access or environmental constraints * These structures are in addition to poles subject to PRC 4292	62%	84%	Listing of work orders attempted, inspected and/or completed in calendar year
Dead & Dying Tree Removal	VM-4	~~345~~ 298	~~530~~ 433	Inspect ~~**650** 509~~ grids/circuits and prescribe mitigation for	100%	~~77%~~ 85%	~~296~~ 281	~~446~~ 424	Inspect ~~**510** 485~~ grids/ circuits and prescribe mitigation for dead and dying trees	100%	~~77%~~ 85%	Inspect ~~**560** 536~~ grids/ circuits and prescribe mitigation for dead and dying trees with strike potential	100%	77%	Tracking of year-to-date completed grids/circuits

*To inform trimming prescriptions in the January to December calendar year, with inspections occurring as early as November 1 in the prior year.

Initiative Activity	Tracking ID	Target End of Q2 2023 & Unit	Target End of Q3 2023 & Unit	End of Year Target 2023 & Unit	x% Risk Impact 2023	% in SRA/HCA 2023	Target End of Q2 2024 & Unit	Target End of Q3 2024 & Unit	End of Year Target 2024 & Unit	x% Risk Impact 2024	% in SRA/HCA 2024	Target 2025 & Unit	x% Risk Impact 2025	% in SRA/HCA 2025	Method of Verification
				dead and dying trees with strike potential within those grids/circuits					with strike potential within those grids/ circuits* (see insertion text above)			within those grids/circuits* (see insertion text above) Note: 2025 schedule will be developed at the circuit / span level, subject to change			for inspection and mitigation
Detailed Inspections for the Prescription, Where Necessary and Feasible, of Expanded Vegetation Clearances from Distribution Lines in HFRA	VM-7	~~1,088~~ 514	~~1,508~~ 753	SCE plans to inspect ~~1,900~~ 902 grids within our distribution system* (see insertion text above)	100%	75%	~~1,088~~ 514	~~1,508~~ 753	SCE plans to inspect ~~1,900~~ 902 grids within our distribution system* (see insertion text above)	100%	75%	SCE plans to inspect ~~1,900~~ 902 grids/circuits within our distribution system* Note: 2025 schedule will be developed at the circuit /span level, subject to change (see insertion text above)	100%	75%	Listing of all completed work orders
Detailed Inspections for the Prescription, Where Necessary and Feasible, of Expanded Vegetation Clearances from Transmission Lines in HFRA	VM-8	~~619~~ 273	~~884~~ 378	SCE plans to inspect ~~1,000~~ 416 circuits ~~grids~~ within our transmission system* (see insertion text above)	100%	75%	~~619~~ 273	~~884~~ 378	SCE plans to inspect 416 ~~1,000~~ circuits ~~grids~~ within our transmission system* (see insertion text above)	100%	75%	SCE plans to inspect ~~1,000~~ 416 circuits ~~grids~~ within our transmission system* Note: 2025 schedule will be developed at the circuit /span level, subject to change (see insertion text above)	100%	75%	Listing of all completed work orders
LiDAR Distribution Vegetation Inspections	VM-9	650	1,020	SCE will inspect at least **1,020** HFRA circuit miles *Subject to change based on technology, program adjustments, and grid/circuits layout	7%	78%	650	1,020	SCE will inspect at least **1,020** HFRA circuit miles *Subject to change based on technology, program adjustments, and grid/circuits layout	N/A	N/A	SCE will inspect at least **1,020** HFRA circuit miles *Subject to change based on technology, program adjustments, and grid/circuits layout. Targets for 2025 for HFRA LiDAR miles assume continuation of support of ground inspections and do not reflect SCE's planned transition to remote sensing for	N/A	N/A	Listing of all completed work orders

Circuit Basis

In 2022, inspections of SCE's Distribution Routine Line Clearing were conducted on a grid-by-grid basis while inspections for other Vegetation Management programs such as Transmission Routine Line Clearing, HTMP, and Dead and Dying Tree Removal inspections were conducted on a circuit basis. In 2023, inspections related to distribution assets for HTMP, Dead and Dying Tree Removal, and Routine Line Clearing program ~~all programs~~ will be conducted on a grid basis in order to deploy the centralized tree inspection schedule. Consistent with recommendations from an independent third-party observation, by 2025, SCE plans to transition inspections for all Vegetation Management programs to a circuit basis, thus completing the consolidated inspection strategy.

LiDAR

As described in Section 8.2.2.4.1, SCE will continue to evaluate the use of LiDAR to supplement and/or replace ground inspections.

8.2.2.2 Hazard Tree Management Program

Inspection Process

The Hazard Tree Management Program (HTMP) assesses live trees in HFRA that pose a fall-in risk due to the condition of the tree and other site-specific factors when they are located far enough from SCE lines and equipment to meet statutory clearance requirements.

Once a circuit[202] is scheduled for inspection, certified arborists complete a detailed level 2 assessment to identify subject trees that could potentially fall into or otherwise impact electrical facilities in HFRA. This assessment is distinct from the inspection process related to Routine Line Clearing, where visual level 1 assessments are performed on trees immediately adjacent to electrical facilities. The arborists inspect trees in the Utility Strike Zone (USZ), the area on either side of SCE's electrical facilities from which a tree or a portion of a tree could strike or impact electrical facilities. The USZ can vary significantly based on the height of the trees, slope conditions, and the potential for impacts from wind-driven vegetation.

HTMP inspectors use the Tree Risk Calculator (TRC) to document tree defects and likelihood of failure and target impact. The certified arborist assigns a risk score based on six criteria: (1) Voltage Impact; (2) Fire Impact; (3) Likelihood of Impact; (4) Tree Lean; (5) Tree Height Factor; and (6) Site Condition Attributes. The final scoring results can range from 1-100 (100 being the highest risk score).

Depending on the inspector's assessment results, a tree is classified into one of two categories: (1) a subject tree which does not need mitigation but is added to SCE's tree inventory for continued monitoring or (2) a hazard tree needing mitigation (trim) or removal. A subject tree is a tree within SCE's tree inventory that is identified as low-risk and with a typical risk score between 0 to 49. A hazard tree needing mitigation, while alive, is considered hazardous with a typical risk score between 50 to 100. The classification of the tree and arborist opinion informs the remediation required.

SCE performs inspections using a risk-based approach encompassed in the TRI model, as described in the below section Frequency or Trigger. Based on the results of the inspection, SCE generates

[202] In 2023, SCE's HTMP program for distribution assets, and not for transmission assets, will be inspected on a grid basis to align with the current Distribution Routine Line Clearing program. However, SCE plans to transition back to a circuit basis in 2025.

customer refusals and other constraints, which can impact the Hazard Tree Management Program.

- *Changes/updates to inspection program since the last WMP Including known future plans (beyond the current year) and new/novel strategies the electrical corporation may implement in the next 5 years (e.g., references to and strategies from pilot projects and research)*

Consolidated Inspection Strategy

As discussed in Section 8.2.2.1 Routine Line Clearing (Distribution & Transmission) above, in 2023, SCE will deploy a new centralized inspection schedule to consolidate the inspection processes for Routine Line Clearing, HTMP, and Dead and Dying Tree Removal Program to allow for better contract and planning optimization.

8.2.2.3 Dead and Dying Tree Removal Program

Inspection Process

SCE uses its ground crews to patrol its HFRA to identify dead and dying trees for removal in its Dead and Dying Tree Removal Program. A tree is classified as dead when the canopy has declined 75% or greater and/or is significantly infected with bark beetles or other invasive insects.

After an inspection is performed and the prescription is generated, SCE will remove the tree consistent with industry practice. This is discussed further below in Section 8.2.3.4 Fall-In Mitigation.

The Dead and Dying Tree Removal Program will also be impacted by the implementation of the consolidated inspection strategy. Please refer to Figure SCE 8-49 in Section 8.2.2.1 for the workflow of the consolidated inspection process.

Frequency or Trigger

For the Dead and Dying Tree Removal program, inspections are performed in applicable areas within Tier 2 and Tier 3 of SCE's HFRA. Applicable areas are determined based on California's Tree Mortality Task Force,[204] which updates maps annually to show High Hazard Zones and Hazard Severity Zones. SCE utilizes these Tree Mortality Task Force categories to incorporate risk prioritization into the Dead and Dying Tree inspection scope.

Starting in 2023, inspections for the Dead and Dying Tree Removal program will be scheduled based on the consolidated inspection strategy. All Hazard Severity Zones and HFRA tiers 2 and 3 have been mapped to a grid/circuit or grids/circuits[205] and will be inputted in SCE's work management tool based on planning month. Building off the Routine Line Clearing schedule (which covers all SCE service area, and not just the applicable areas within Tier 2 and Tier 3 of HFRA targeted by the Dead and Dying Tree Removal program), inspectors who are sent during "cycle buster"[206] visits looking for uncharacteristic growth will

[204] For more information, see the link for the California Tree Mortality Task Force.
[205] In 2025, SCE intends to return to circuit based mapping for all VM inspections to align with T&D processes.
[206] Cycle buster visits typically occur on a six-month cadence and are intended to address vegetation that will not make it through the annual routine trim cycle without encroaching on the required minimum clearances and which therefore require pruning midterm before the routine cycle is completed.

8.3.3.1.2.1 Protective Relay - Transmission Open Phase Detection (TOPD) (SH-8)

TOPD technology allows de-energization of an open phase (broken conductor) on the transmission system before it contacts a grounded object resulting in a fault event. This technology reduces ignition risks associated with the high voltage transmission system. Please see Section 8.1.8.1.3.2 for a detailed discussion of TOPD.

- *Location of the system / locations measured by the system:* SCE equips existing Transmission relays that protect the Transmission lines residing in HFRA with the TOPD scheme. The TOPD scheme provides open phase detection from both the local and remote terminal to the whole Transmission line on which the TOPD-equipped Transmission relay sits.
- *Integration with the broader electrical corporation's system:* The TOPD scheme provides an additional layer of protection for Transmission lines and is integrated with the Energy Management System (EMS).
- *How measurements from the system are verified:* TOPD is in the pilot stage and most of the installation will remain in "Alarm mode" only, including new installations of TOPD. During "Alarm Mode" the TOPD scheme will not de-energize Transmission lines (please see Section 8.1.8.1.3.2 for a detailed discussion of TOPD). Upon receiving an Open Phase alarm, analysis of the any available relay oscillographs will be performed to determine operational effectiveness.
- *For intermittent systems (e.g., aerial imagery, line patrols), what triggers collection. This should include flow charts and equations as appropriate:* Not applicable. These are not intermittent systems despite having sampling intervals as the systems are continuously operating to detect conditions. TOPD provides continuous monitoring of the Transmission line for an Open phase event related to a hardware failure.
- *For calculated quantities, how raw measurements are converted to calculated quantities. This should include flow charts and equations as appropriate*: The TOPD scheme is continuously monitoring the Transmission line for a loss of current on any single phase (wire). The minimum arming requirements must be met to successfully declare an open phase event. Upon an identification of a loss of phase, the TOPD scheme will validate that remaining phases are continuing to operate normally (un-faulted, normal load, etc.). If the above requirements are met, the TOPD will successfully declare an Open Phase event providing a local and remote alarm.
- TOPD is armed when loading is above 13% of the primary current transformer ratio (CTR) and identifies an open phase event on the transmission line for a single conductor break. The scheme measures the primary current of a Current Transformer (CT) by measuring the secondary of the CT and then multiplying by the CTR.

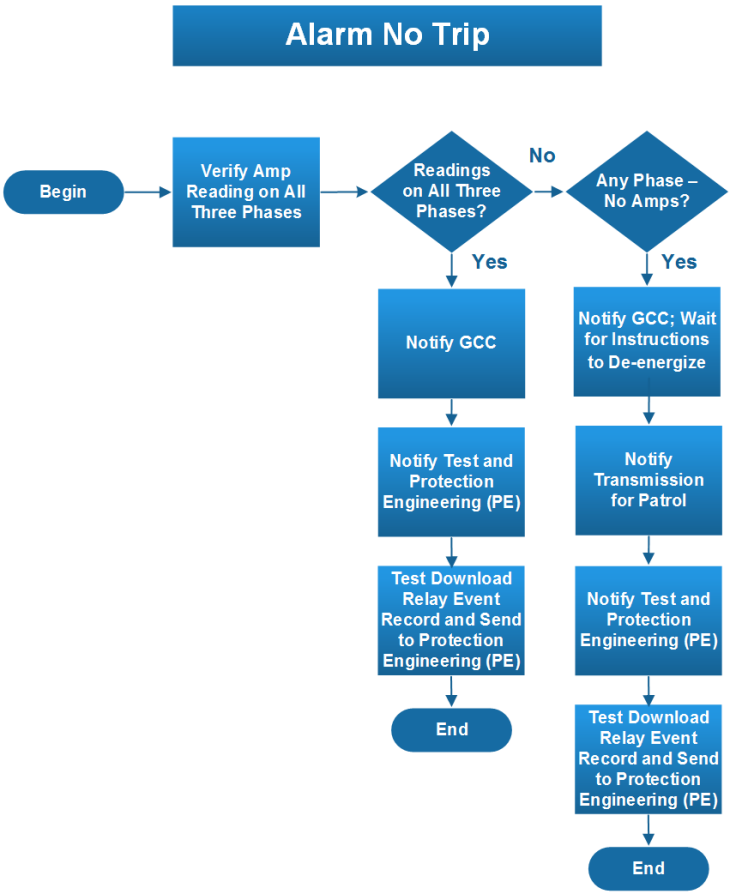
$$TOPD_{Arming} \geq 13\% * CTR_{Pri}$$

8.3.3.1.2.2 Protective Relay—Distribution Open Phase Detection (DOPD)

Similar to TOPD, DOPD is a technology on the distribution system that allows de-energization of an open phase (broken conductor) before it contacts a grounded object resulting in a fault event.

- *Location of the system / locations measured by the system:* The DOPD scheme leverages existing assets (Distribution Recloser Controllers) that protect the Distribution lines residing in high fire risk areas.

Figure SCE 8-47 - DOPD Alarm Verification Process



- *For intermittent systems (e.g., aerial imagery, line patrols), what triggers collection*. This should include flow charts and equations as appropriate: Not applicable. These are not intermittent systems despite having sampling intervals as the systems are continuously operating to detect conditions. DOPD provides continuous monitoring.
- *For calculated quantities, how raw measurements are converted to calculated quantities*. This should include flow charts and equations as appropriate: The DOPD scheme is continuously monitoring the Distribution line for changes in the magnitude and angle of the voltage to detect for an Open Phase condition.

DOPD utilizes the voltage (V) and current (I) transformation signals to identify an open phase(s) event on the primary portion of the distribution circuit. The scheme measures the primary voltage of a Potential Transformer (PT) by measuring the secondary of the PT and then multiplying by the PT ratio (PTR). The scheme measures the primary current of a CT by measuring the secondary of the CT and then multiplying by the CTR.

$$I_{Pri} = I_{Sec} * CTR$$

$$V_{Pri} = V_{Sec} * PTR$$

8.3.3.1.2.3 Protective Relay—High Impedance (Hi-Z) Relays

SCE's traditional feeder protection elements are based on overcurrent, meaning the protection elements rely on fault magnitude to trigger the relay to operate. In a Hi-Z event, however, the fault magnitude is relatively small to non-existent. A Hi-Z scheme may detect incipient faults that are undetectable by the conventional overcurrent-based schemes. SCE is evaluating and validating Hi-Z efficiency in the field in detecting actual Hi-Z events.

- *Location of the system / locations measured by the system:* The Hi-Z scheme leverages existing assets (Distribution Recloser Controllers) that protect the Distribution lines residing in HFRA. The Hi-Z controllers are installed at recloser controller locations in HFRA to assess the effectiveness of detecting Hi-Z conditions. The locations were selected based on having voltage-sensors with minimum required current levels (i.e., ≥ 25amps).
- *Integration with the broader electrical corporation's system*: The Hi-Z scheme is integrated with the DMS system and is an additional layer of protection for incipient faults that is continuously monitoring the Distribution line for high impedance conditions.
- *How measurements from the system are verified:* The Hi-Z scheme is being deployed initially in "alarm mode" only during the pilot stage. Upon receiving a Hi-Z alarm, analysis of the any available relay oscillographs will be performed to determine operational effectiveness.
- *For intermittent systems (e.g., aerial imagery, line patrols), what triggers collection. This should include flow charts and equations as appropriate*: Not applicable. These are not intermittent systems despite having sampling intervals as the systems are continuously operating to detect conditions. The Hi-Z scheme is continuously monitoring the Distribution line for changes in circuit harmonics to detect Hi-Z conditions.
- *For calculated quantities, how raw measurements are converted to calculated quantities. This should include flow charts and equations as appropriate:* Once a Hi-Z condition is detected, records from the controller are collected to be analyzed to evaluate the schemes' performance.

Hi-Z algorithm utilizes voltage (V) and currents (I) from the primary to arm the scheme when the loading is above 5% of the primary CTR to detect for Hi-Z conditions. The scheme measures the primary voltage of a PT by measuring the secondary of the PT and then multiplying by the PTR. The scheme measures the primary current of a CT by measuring the secondary of the CT and then multiplying by the CTR.

$$HiZ_{Arming} \geq 5\% * CTR_{Pri}$$

$$I_{Pri} = I_{Sec} * CTR$$

$$V_{Pri} = V_{Sec} * PTR$$