BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Application of San Diego Gas & Electric Company (U902M) for Review of its Safety Model Assessment Proceeding Pursuant to Decision 14-12-025.	A.15-05-002
And Consolidated Matters.	A.15-05-003 A.15-05-004 A.15-05-005
NOT CONSOLIDATED	
Application of Southern California Edison Company (U338E) for Authority to Increase its Authorized Revenues for Electric Service in 2021, among other things, and to Reflect that Increase in Rates.	A.19-08-013
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Order Instituting Rulemaking to Further Develop a Risk-Based Decision-Making Framework for Electric and Gas Utilities.	R.20-07-013

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) 2020 SAFETY PERFORMANCE METRICS REPORT

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Dated: **April 1, 2021**

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SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) 2020 SAFETY PERFORMANCE METRICS REPORT

Pursuant to Ordering Paragraphs 1 and 2 of Decision (D.) 19-04-020, Southern California Edison Company (SCE) respectfully submits the attached 2020 Safety Performance Metrics Report.

Respectfully submitted,

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April 1, 2021

Appendix A

Southern California Edison Company's 2020 Safety Performance Metrics Report

Southern California Edison Company's
2020 Safety Performance Metrics Report

April 1, 2021

Southern California Edison's 2020 Safety Performance Metrics Report

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I.

INTRODUCTION

Southern California Edison Company (SCE) submits its 2020[1] Safety Performance Metrics Report (SPMR) in accordance with Decision (D.) 19-04-020—the Phase Two decision in the Safety Model Assessment Proceeding (SMAP), Application (A.) 15-05-002.[2] SCE's 2020 SPMR is divided into two chapters. Chapter 1 discusses Safety Policy Division's (SPD) review of SCE's 2019 SPMR; SCE's Safety Performance Metrics and use of metrics data; the relationship between Safety Performance Metrics and SCE's executive compensation, including bias controls; and SCE's progress towards its safety goals.[3] Chapter 2 explains the eleven approved metrics for SCE and, for each metric, SCE's historical data and, where applicable, bias controls and/or links to financial incentives.

Chapter 1 is organized as follows:

- Section A discusses SPD's recommendations from its review of SCE's 2019 SPMR and where they are addressed in SCE's 2020 SPMR.
- Section B provides examples of how SCE has used the Safety Performance Metrics data to improve employee and contractor training and takes corrective actions to minimize top risks or risk drivers and how SCE has used this data to support risk-based decision-making in accordance with the SMAP and Risk Assessment Mitigation Phase (RAMP) processes.
- Section C discusses which of the eleven approved metrics are linked to or used in any way for the purpose of determining executive compensation levels and/or incentives and which are linked to individual and group performance goals. This section also identifies the director-level or higher executive positions linked to these metrics and describes the bias controls SCE has in place to ensure that reporting of the metrics has not been gamed or skewed to support a financial incentive goal.

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1 SCE submitted its annual Safety Performance Metrics Report on April 1, 2020 under the title "2020 Safety Performance Metrics Report" whereas its counterparts utilized the title of "2019 Safety Performance Metrics Report." As the annual report recounts data and results from the prior year and to align with the other Investor Owned Utilities, SCE has designated this report as the "2020 Safety Performance Metrics Report" and references to the prior year's annual report shall be to the "2019 Safety Performance Metrics Report."

2 D.19-04-020 requires that SCE annually file and serve its Safety Performance Metrics Report on March 31. Due to the California Public Utilities Commission's (Commission) observance of Cesar Chavez Day on March 31, 2021, however, SCE is filing and serving this 2020 Safety Performance Metrics Report on April 1, 2021.

3 *See* D.19-04-020, Ordering Paragraph (OP) 6.

- Section D explains how the safety metrics data reflects progress against SCE's RAMP and General Rate Case (GRC) safety goals and provides a high-level summary of SCE's total estimated risk mitigation spending level as approved in its last GRC decision.

- Section E provides a narrative overview of each of the eleven approved Safety Performance Metrics for SCE, which are shown below in Table I-1.

Table I-1
SCE Approved Safety Performance Metrics[4]

Metric Name	Metric Category	Units	Metric Description
1. T&D Overhead Wires Down	Electric	Number of Wire Down Events	Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; excludes down secondary distribution wires and "Major Event Days" (typically due to severe storm events) as defined by the IEEE.
2. T&D Overhead Wires Down - Major Event Days	Electric	Number of Wire Down Events	Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; includes down secondary distribution wires. Includes "Major Event Days" (typically due to severe storm events) as defined by the IEEE.
3. Electric Emergency Response	Electric	% of time response is within 60 mins	The percent of time utility personnel respond (are on-site) within one hour after receiving a 911 (electric related) call, with on-site defined as arriving at the premises to which the 911 call relates.
4. Fire Ignitions	Electric	# of Ignitions	The number of powerline-involved fire incidents annually reportable to the CPUC per Decision 14-02-015. A reportable fire incident includes all of the following: 1) Ignition is associated with a utility's powerlines and 2) something other than the utility's facilities burned and 3) the resulting fire traveled more than one meter from the ignition point.
14. Employee Serious Injuries and Fatalities	Injuries	Number of Serious Injuries and Fatalities	A work-related injury or illness that results in a fatality, inpatient hospitalization for more than 24 hours (other than for observation purposes), a loss of any member of the body, or any serious degree of permanent disfigurement.
15. Employee Days Away, Restricted and Transfer (DART) Rate	Injuries	DART Cases times 200,000 divided by employee hours worked	DART Rate is calculated based on number of OSHA- recordable injuries resulting in Days Away from work and/or Days on Restricted Duty or Job Transfer, and hours worked
18. Contractor OSHA Recordable Rate	Injuries	OSHA recordable times 200,000 divided by contractor hours worked associated with work for the reporting utility.	An OSHA recordable incident is an occupational (job- related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. OSHA recordable rate is calculated as OSHA recordable times 200,000 divided by contractor hours worked.
20. Contractor Serious Injuries and Fatalities	Injuries	#of work- related injuries or illnesses associated with work for the reporting utility	A work-related injury or illness that results in a fatality, inpatient hospitalization for more than 24 hours (other than for observation purposes), a loss of any member of the body, or any serious degree of permanent disfigurement.
21. Contractor Lost Work Day Case Rate	Injuries	# of Lost Workday (LWD) cases incurred for contractors per 200,000 hours worked associated with work for the reporting utility.	This measures the number of Lost Workday (LWD) cases incurred for contractors per 200,000 hours worked (for approximately every 100 contractors). A Lost Workday Case is a current year OSHA Recordable incident that has resulted in at least one lost workday. An OSHA Recordable incident is an occupational (job related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. The formula is: LWD Case Rate = Number of LWD Cases / productive hours worked x 200,000.
22. Public Serious Injuries and Fatalities	Injuries	# of Serious Injuries and Fatalities	A fatality or personal injury requiring in-patient hospitalization involving utility facilities or equipment. Equipment includes utility vehicles used during the course of business.
23. Helicopter / Flight Accident or Incident	Vehicle	# of accidents or incidents (as defined in 49 CFR Section 830.5 "Immediate Notification") per 100,000 flight hours	Defined by Federal Aviation Regulations (FARs), reportable to FAA per 49-CFR-830.

Chapter 2 is divided into eleven sections for each metric shown in Table I-1. For each metric, the first subsection provides a narrative description and visual depiction of the annual historical metric

[4] These metrics (Version 1.0) are provided in Attachment 1 to D.19-04-020.

data.[5] The next subsection addresses whether the metric is used for the purposes of determining executive level compensation or incentives or is linked to the determination of individual or group performance goals. The final subsection describes what, if any, bias controls are in place for the metric.

A. SPD's Review of SCE's 2019 SPMR

On December 30, 2020, SPD provided its review of SCE's 2019 SPMR. SPD concluded SCE's 2019 SPMR complied with the requirements of D.19-04-020 and made certain recommendations.[6]

SPD recommended that, in the metrics narrative, SCE should provide information on whether performance for that metric was above or below average and, if possible, provide context to explain performance in the most recent year. SCE should also provide context on potential risk drivers for the metric.[7] SPD also provided metric specific recommendations in their review.[8] SCE sought to address all metric specific feedback in the respective narratives in Section II below.

SPD requested that SCE include more specific information on executive compensation links for each of the metrics, including how much each metric is weighted within total compensation and which specific executive positions were affected.[9] In addition, SPD requested information on what years executive compensation was impacted, how many executives were impacted, and what percentage of their total bonus compensation this affected. SPD noted that SCE did not state whose specific compensation is tied to various metrics beyond "all directors," and how much of their compensation is affected by safety performance.[10] SCE addresses these recommendations in Section I.C below.

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5 SCE provides the monthly historical data in Attachment A and in the Excel file served concurrently with this report.

6 Safety Policy Division's Review of Southern California Edison's 2020 Safety Performance Metrics Submittal Pursuant to Decision 19-04-020, p. 20.

7 *Id*.

8 *Id. pp. 8 - 19.*

9 *Id. p. 20.*

10 *Id. p. 5.*

B. SCE's Use of Safety Performance Metrics Data

Per Ordering Paragraph 6.D of D.19-04-020, the Commission directed each of the investor-owned utilities (IOUs)[11] to "[p]rovide three to five examples of how the utility has used Safety Performance Metrics (metrics) data to improve staff and/or contractor training, and/or to take corrective actions to minimize top risks or risk drivers; and, provide three to five examples how the utility is using metrics data to support risk-based decision-making as required in the SMAP and RAMP processes."[12] The following sections provide the requested examples.

1. Use of Safety Performance Metrics Data to Improve Staff and/or Contractor Training, and/or to Take Corrective Actions to Minimize Top Risks or Risk Drivers

As illustrated below, SCE has used Safety Performance Metrics data to improve worker safety training, develop new programs and initiatives aimed at reducing injuries and fatalities, and identify the most impactful areas on which to focus our safety efforts. The following are examples of certain recent efforts SCE has undertaken; this is not an exhaustive list. Additional information regarding SCE's safety efforts can be found in the metric-specific narratives in Section II of this report and in SCE's 2018 RAMP report, 2021 Wildfire Mitigation Plan (WMP), and Test Year 2021 GRC testimony.[13]

Public Safety

Targeted Public Communications Addressing Public Safety Risks

SCE uses Public Serious Injuries and Fatalities (SIF) data and Excavation Incident data to evaluate the risk to the public of electrical contact with underground equipment due to excavation (Dig-ins). This analysis helps prioritize education, outreach, and mass media programs to improve awareness of the hazards associated with our electrical infrastructure work (including Dig-ins) and mitigate risk to

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[11] The IOUs are defined in D.19-04-020 as SCE, Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), and Southern California Gas Company (SoCalGas).

[12] The IOUs are permitted to provide fewer examples if relevant data is not yet fully available in their first two reports. *See* D.19-04-020, p. 28 n. 50.

[13] *See* SCE's 2018 RAMP, I.18.11-006, Nov. 30, 2018 RAMP report, Chapter 7 – Employee, Contractor and Public Safety; SCE's 2021 WMP, SCE's 2021 GRC, A.19-08-013, Exs. SCE-06 Vol. 3 Pt.1 and SCE-06 Vol. 4.

the public. It also informs key features of the awareness programs, such as target audience by composition and location, timing of programs, and content of messaging.

Meter Alarm of Down Energized Conductor (MADEC)

In 2017, SCE launched the Reliability Operations Center (ROC) as part of a larger effort to incorporate innovative data analytics in our operations. The ROC enhances SCE's ability to detect energized wire-down events in real time and reduce reliance on customer calls, government agency reports and manual patrols. Response time is critical to address incidents of energized downed conductors which pose significant risk to public safety and can cause ignitions leading to wildfires.

The ROC team developed a machine-learning algorithm, MADEC (Meter alarming for downed energized conductor), that quickly identifies high-impedance electrical faults signaling possible energized wire-down events. These types of electrical faults are not typically detected by conventional circuit protection schemes. Using real-time smart meters data, MADEC has been able to detect energized wire-down events with a reasonable level of recall and precision. Since MADEC's implementation in January 2019, the ROC team has successfully detected and de-energized nearly 120 energized wire down events within seven minutes of alarm. In 2020, the ROC team detected and proactively de-energized 53 wire downs. The average time from alarm to isolation was five minutes, with an overall alarm precision of 60%. Additionally, the ROC team has enhanced MADEC by integrating our Energy Management System (EMS) which further reduced response time by approximately 50%.

The primary benefit of proactive de-energization is mitigating the risk of public exposure to energized downed conductors by reducing response time. A secondary benefit is mitigating the risk of wildfire ignition from live wire sparking. Finally, the implementation of MADEC assists our field personnel by reducing troubleshooting time. By enhancing detection of potential energized, downed conductors, the data provided by MADEC mitigates risks to public and worker safety from electrocution hazard and wildfire ignitions.

Employee Safety

Safety Predictive Analytics

The Safety Predictive Model (SPM) is a predictive modeling tool that leverages historical data from serious injuries and fatalities to assess potential safety risks posed by planned work orders based on nature of the work and crew-related characteristics (e.g. number of crews assigned to the work and crew members' length of service and training/apprenticeship) and to mitigate the risk of serious injuries and fatalities. SPM flags work orders with elevated risk or associated with past injury and fatality to workers and identifies the key factors that contribute to the high risk. Data from the SPM is incorporated in crew safety discussions and work management processes of districts to help enhance worker safety by focusing on how to reduce risk of injury. Early versions of SPM were built and deployed in three Distribution districts as a pilot. By 2020, SPM was implemented in five additional Distribution districts. In 2021, SCE plans to implement SPM in ten additional Distribution districts.

To complement the operationalization of the SPM, the Digital Crew Board was developed. It is a digital platform leveraging SPM data that the field supervisors use to assign crews to work orders. It can be accessed via web browser on a laptop or mobile device. This platform gives the field teams the capability to make real time adjustments to mitigate safety risks as field management prepares for work execution. The Digital Crew Board is but one solution where the safety risk will be displayed. The safety model has been designed to be utilized during other critical processes. The Digital Crew Board was deployed in three Distribution districts in 2020. By 2021, the Digital Crew Board is planned for nine additional Distribution districts.

Risk Based Safety Program

Piloted in late 2019, the Risk Based Safety Program focuses on SIF elimination through prioritizing, evaluating and developing mitigations for risks that result in SIFs. Currently, three analytic approaches are being utilized. These consist of one comprehensive and two expedient approaches. Risk depth, breadth and complexity are considered when pairing each risk with an approach. The first approach was a comprehensive risk analysis that targeted substation arc flashes. Our comprehensive risk analysis leverages risk mapping all the paths that can lead to a SIF and performing a probabilistic

risk assessment to understand the impact of implementing certain mitigations on SIF outcomes. From this first evaluation, a series of engineering, system, human and process based risk mitigations were identified. After the substation arc flash risk pilot, the Program evolved further to focus on (1) heightened prioritizing of key SIF risks (to be incorporated into the Enterprise Risk Register), (2) evaluating the prioritized enterprise risks, (3) identifying risk mitigations across the Hierarchy of Controls with emphasis on Engineering & System controls, and (4) advancing towards implementing the mitigations as approved. The Program has been integrated in SCE's 2021 Worker Safety Corporate Goal.[14]

As further detailed in Section II.E below, arc flash incidents have been the cause of multiple employee SIFs and potential SIFs during 2020. The Risk Based Safety Program preliminarily identified 12 potential risk mitigations for Substation Arc Flashes in three key categories: (1) Engineering Risk Mitigations, including Bus Differential, Load buster tool, Load break disconnect, and Metal Clad Switchgear; (2) System Risk Mitigations, including Updated Labeling/Signage and Disconnect Maintenance Program; and (3) Human and Process Risk Mitigations, including Acting Operator Continuous Education Program and EMS tagging of ongoing construction.

Contractor Safety

Enhancement of Contractor Safety Standards

As part of SCE's effort to eliminate SIFs, SCE's 2021 Contractor Safety program has been enhanced to improve oversight of our contractors engaging in higher risk assignments. A Safety Tier 1 High Risk category was developed as part of this change, which includes, Vegetation Management and Electric Line Construction, two areas that have seen instances of contractor SIFs in recent years. The contractors in this category are now required to maintain one Safety Professional for every 30 workers while standard Tier 1 work requires one Safety Professional for every 50 workers. The Safety Professional's sole responsibilities are supervising safe work practices and certifying

[14] Executive Compensation Submission of Southern California Edison Pursuant to Assembly Bill 1054 (accessible at https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/WSD/SCE%20Executive%20Compensation%202021.pdf), pp. 6 and 9.

compliance with safety and health regulations. Safety Professionals must possess experience with the work activities within the contract scope. The functions of Safety Professionals include:

a. Managing work practices and procedures that directly support the elimination of SIFs;
b. Coordinating efforts to comply with all applicable rules and procedures;
c. Coordinating the execution of SCE's Contractor Handbook with a focus on:
    i. Orientation for all employees and subcontractors on requirements in the Hazard Assessment and Safety Plan (HASP), Contractor Handbook Orientation Checklist (CHOC) and any other applicable company policies and procedures to validate worker qualifications, training, and on-boarding;
    ii. Conducting field safety observations and following up on subsequent corrective actions;
    iii. Improving work practices and procedures; and
    iv. Overseeing incident management and reporting requirements

Safety Tier 1 High Risk contractors are also required to adopt and train their employees on SCE's Critical Observable Actions to support incident mitigation.

2. <u>Use of Safety Performance Metrics Data to Support Risk-Based Decision-Making as Required in the SMAP and RAMP Processes</u>

SCE's risk-informed decision making (RIDM) framework continues to advance through the incorporation of Safety Performance Metrics data. Below are some examples of how the Safety Performance Metrics are a part of the RIDM and support risk-based decision making consistent with the SMAP and RAMP processes.

Wildfire Risk Reduction Modeling (WRRM)

In 2020, SCE achieved several key milestones in enhancing our wildfire risk analytics. Our team developed asset specific probability of ignition (POI) models for transmission and sub-transmission assets to supplement existing distribution asset models. SCE also transitioned to a new fire consequence modeling tool developed by Technosylva. We also developed a method to translate the

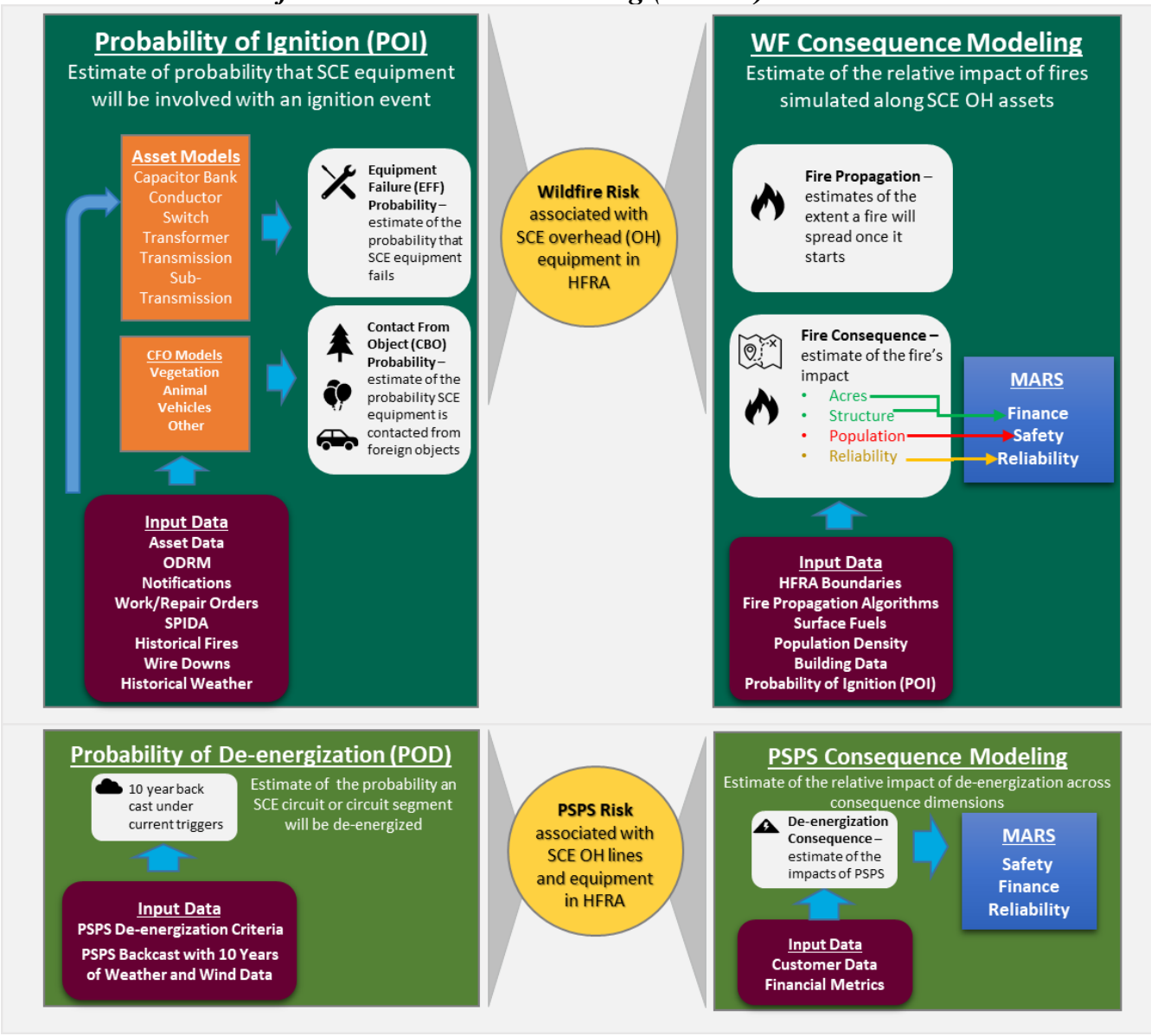
risk scores calculated, at the structure (pole or tower) level, by our POI and consequence models into unitless values (MARS[15]) consistent with the Multi-Attribute Value Framework (MAVF) methodology approved in the Safety Model and Assessment Proceeding (SMAP). Finally, SCE developed a Public Safety Power Shutoffs (PSPS) risk calculation to more comprehensively account for risk reduction benefits and the risks associated with use of PSPS for individual circuit segments. These improvements and additions are integrated into the overarching model known as the Wildfire Risk Reduction Modeling (WRRM). The WPRM measures risk and risk reduction at the asset and location level for both wildfire and PSPS risk in a consistent RIDM framework.

The WRRM framework, depicted below in Figure I-1, leverages the risk bowtie to organize drivers, triggering events, and consequences. The triggering event at the center of the wildfire bowtie is an ignition in SCE's High Fire Risk Area (HFRA). On the left-hand side, asset and contact from object models, are used to develop an estimate of the POI for a given set of assets. For example, potential ignitions from conductors are primarily driven by equipment failure, contact from objects (such as trees or balloons), and wire-to-wire contact (such as during high wind conditions). The consequences of these ignition events are estimated on the right-hand side using the Technosylva consequence model.

The model estimates the potential spread of a fire over a given time and the corresponding impact of this fire in natural units - structures, acres, and population. These consequences are then translated into MARS units to compare wildfire and PSPS risks, as well as to calculate a risk spend efficiency (RSE). The output of individual models and/or the entirety of the model output, is used for RIDM.

[15] Multi-Attribute Risk Score.

Figure I-1
Wildfire Risk Reduction Modeling (WRRM) Framework



For further detail regarding the WRRM, POI and ignition consequence models, MARS, RSE calculations, resource allocation and prioritization methodology and future improvements, please consult SCE's 2021 WMP.[16]

[16] SCE's 2021 Wildfire Mitigation Plan, February 5, 2021, Sections 4 and 7.3.

Fire Incident Preliminary Analysis (FIPA) Process

In April 2019, SCE launched the Fire Incident Preliminary Analysis (FIPA) process to perform more in-depth investigations into all ignitions that occurred in connection with our electric facilities and help further our wildfire mitigation efforts and risk modeling. The FIPA process has three levels of investigation, depending on the complexity of the ignitions.

- Level 1 - Typically includes a review of pictures, telephone interviews, and Repair Orders.
- Level 2 - In addition to Level 1, may include site visits and fault analysis.
- Level 3 - In addition to Level 2, may include evaluating the equipment/material by a root cause engineer.

The FIPA process has provided and continues to provide additional data through more in-depth investigations into ignition events and informs SCE's mitigation strategies and risk modeling consistent with SMAP and RAMP. SCE collects this data for its entire service area. Although SCE prioritizes incidents that occur in HFRA, SCE also collects information in non-HFRA because there may be common failure modes that occur throughout the service area. This information can then be used to target risk mitigations where needed.

In 2020, the FIPA team analyzed 795 events. In 2021, SCE has expanded the presentation of its faults and wire-down causes to add categories not listed in the Wildfire Safety Division (WSD) list. This will allow greater visibility to causes that were previously designated as 'Other.' SCE has also developed a software tool that searches the free form text of repair orders for key words that may indicate potential ignitions or near misses. For further detail regarding the FIPA process, please consult SCE's 2021WMP.[17]

Wires Down Risk Model

As stated in our 2019 SPMR, SCE uses historical wire-down events and our predictive analytics model to inform the scope for the overhead conductor program (OCP). In 2020, SCE

[17] SCE's 2021 Wildfire Mitigation Plan, Section 7.3.7.4, pp. 304 – 305.

enhanced the Wire Down (WD) risk model in an effort to reduce public safety risk from wire downs. As shown in Table II-11, contact from energized wires down is a key public safety risk. The results of this analysis provide an understanding of the risks associated with overhead conductors within our distribution system allowing us to identify and target circuit segments with a higher probability of experiencing a wire down incident. Some of the key enhancements to the WD risk model in 2020 included incorporating additional physical asset features, including overhead and underground transformers, overhead and underground switches, length of downstream cable, age of transformer and weather data, such as wind force. SCE is continuing to improve the WD risk model for use in our risk-based decision-making processes.

C. Description of Executive Compensation Links and Bias Controls

Pursuant to D.19-04-020,[18] this section discusses (1) Safety Performance Metrics linked to or used for the purpose of determining executive compensation level and/or incentives, (2) Safety Performance Metrics linked to individual and group performance goals, (3) the Director-level or higher executive positions linked to Safety Performance Metrics and (4) bias controls associated with the reporting of Safety Performance Metrics.

During 2020, four Safety Performance Metrics were directly linked to SCE's incentive compensation plans for our employees, including those in executive positions. Specifically, Employee SIF, Contractor SIF, Public SIF, and Employee DART Rate contribute to determining whether SCE's corporate goals were met which, in turn, impacts the amount of incentive compensation paid under SCE's Executive Incentive Compensation (EIC) Plan.[19] As further described herein, SCE annually conducts audits of corporate goal metrics to protect against any gaming or skewing of metrics reporting.

1. Overview of Annual Incentive Awards Programs Applicable to Executives

For SCE employees holding Director-level or higher positions, the annual incentive awards are paid under the EIC Plan and based on the achievement of specific safety, operating, financial

[18] *See* D.19-04-020, Ordering Paragraph 6.A-C.

[19] In lieu of the EIC, non-executive employees are eligible incentive compensation under the Short Term Incentive Plan (STIP). STIP and EIC are aligned with the same set of Company performance goals.

and strategic objectives that benefit our customers and other stakeholders. Whether SCE meets those objectives directly impacts the level of incentives paid under the EIC Plan. For additional information on the EIC Plan, please refer to SCE's 2021 GRC testimony and Executive Compensation Submission pursuant to Assembly Bill 1054.[20]

2. Development of SCE's Corporate Goals

The process for establishing SCE's 2020 corporate goals began in June 2019 when SCE's management team conducted a strategic refresh of business priorities with the Board of Directors (Board). A supplemental review and refresh of the resulting Goal Framework was performed in July 2019 to validate goal categories and alignment with business priorities. Thereafter, the team developed representative success measures for goals within each category reflecting desired goal outcomes.

Criteria employed to develop success measures include the meaningfulness of the metric in representing the desired outcomes or performance levels, the maturity of the metric (*e.g.,* the availability and quality of data, level of understanding of the drivers that influence the metric, and the degree of influence the company has over those drivers), the likelihood of achievement due to various factors (*e.g.*, budgetary and regulatory commitments, resource availability and/or constraints, and historical performance) and the potential for improvement over past years' performance.

Draft metrics and milestones were refined through a series of reviews by senior executives beginning in September and by the Board beginning in October and concluding with final approval by the Compensation and Executive Personnel Committee (Compensation Committee) in February of the following year. The Compensation Committee is comprised of independent Board members who have significant experience and qualifications and bring a variety of perspectives to the Compensation Committee's deliberations. No SCE officers or employees serve on the Compensation Committee.

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[20] See Exhibit SCE-06 Vol. 03 Part 1 – Employee Benefits, Training & Support and Executive Compensation Submission of Southern California Edison Pursuant to Assembly Bill 1054 dated January 15, 2021 (accessible at https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/WSD/SCE%20Executive%20Compensation%202021.pdf).

In February 2021, the Compensation Committee assessed company performance against goals for 2020. The Compensation Committee duly considered both what was accomplished and the manner in which it was accomplished. Significant weight was given to the efficacy and prudency of the efforts beyond the absolute outcomes. The Compensation Committee retains discretion to reduce or eliminate entirely annual incentive awards should circumstances warrant. The Compensation Committee has exercised this discretion in recent years to reduce or eliminate payouts when safety goals were not met.[21]

3. Safety Performance Metrics Linked to Executive Compensation through SCE's Corporate Goals

SCE's corporate goals for 2020 are shown in Table I-2. In 2020, SCE's corporate goal structure increased the weighting of our safety and resiliency efforts and included an overarching goals framework related to safety and compliance. Safety and compliance are foundational and events such as worker (employee and contractor) fatalities and serious injuries to the public from system failures can result in meaningful deduction or full elimination of EIC awards, regardless of the performance of the other goal categories. The overarching goals framework can supersede all of the other goals for purposes of determining incentive payouts. The Compensation Committee has the discretion to determine whether the reduction or elimination tied to that framework applies to all plan participants, all executives, or only specific officers.

Weights are assigned at the goal category level, not the individual goal or success measure level. For the three main goal categories of Safety and Resiliency, Financial Performance and Operational Excellence and Strategic Advancement, the highest weighting is placed on Safety and Resiliency. Notwithstanding, our philosophy emphasizes the importance of viewing these goal categories as a whole. When the goals are initially established, the subcomponents within the goal categories are not allocated specific weights to avoid obfuscating the importance of each goal category. After year-end, the Compensation Committee assesses the individual representative success measures

[21] *See* Table I-3 below.

approved at the beginning of the year alongside other important activities and developments during the year. At that point, the Compensation Committee evaluates the relative importance of the various success measures and scores the subcategories.[22] As shown below, SCE's corporate goals also include worker safety metrics. In addition to Employee DART rate, the SIF rate was added as a metric in 2020 to track safety performance that highlights our focus on preventing life-threatening and life-altering events. By linking Safety Performance Metrics of Employee SIF and Employee DART rate, our Safety and Resiliency goals focus on promoting safe working practices and work environments and equipping our workforce with tools and skills to be safety stewards and advocate safety to others through our safety culture training efforts. In 2020, SCE also added public safety goal measures around improving public awareness of risks presented by electric lines and equipment, including results from public surveys, outreach activities performed and deployment of programs reducing safety hazards from contact with energized equipment and underground equipment failure, such as timeliness of vegetation line clearing trims and installations of covered pressure relief restraint vault lids. Further, while safety and resiliency have always been a key component of the corporate goals, we continued to add goals for wildfire safety and resiliency. Embedded in the most heavily weighted 2020 category, wildfire resiliency goal measures focus on reducing risk of catastrophic wildfires associated with the utility infrastructure. The WMPs, which are the cornerstone of the work that SCE is doing to harden the grid and reduce the impact of wildfires for our customers, are a critical component of the annual incentive plan. The Compensation Committee has the discretion to factor in any wildfire impacts to our communities when reviewing company goals and assessing performance.

Other goals focus on key operational and service excellence measures promoting efficient management of core business operations, advancement of key innovation/transformation activities essential to meeting longer-term business strategy objectives, and cultivation of a more agile, diverse workforce and supplier group.

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[22] *See* the "Annual Incentive Awards" section of our January 15, 2021 submission to the Wildfire Safety Division for additional information.

Table I-2 identifies the instances where SMAP Safety Performance Metrics are linked to a corporate goal in the third column.

Table I-2
SCE Company Goals Included in EIC for the 2020 Plan Year

Goal Category and Target Score for Goal Category	Representative Success Measures for Goal Category	SMAP Safety Performance Metrics Linked to Executive Compensation
Overarching Goals Framework[23]	• The goals will be achieved while living the company's values, which include safety	• No worker fatalities (Employee & Contractor SIF) • No serious injuries to public from system failure (Public SIF)
	• Safety and compliance are foundational and events such as fatalities or significant non-compliance issues can result in meaningful or full elimination of short-term incentive compensation	
Safety and Resiliency 45	• Worker Safety: Make significant progress to reduce serious injuries and fatalities. Improvements will be measured utilizing metrics such as DART and SIF rates ○ Improvements in work processes also will be targeted utilizing data-driven assessment of risk associated with various work orders and contractor program changes	• Employee SIF • Employee DART rate
	• Public Safety: Reduce risk of public injury related to electric infrastructure ○ Improvements will be measured utilizing metrics such as public awareness of hazards, *e.g.*, wire down ○ Improvements in public safety programs will be measured through execution of vault lid restraints and vegetation line clearing programs	
	• Wildfire Resiliency: Reduce the risk of catastrophic wildfires associated with electric infrastructure consistent with the WMP ○ Improvements will be measured utilizing metrics related to covered conductor deployment, overhead inspection program, hazard tree mitigation and weather station deployment ○ Process improvements related to Public Safety Power Shutoffs (PSPS) will also be targeted and measured through enhancements related to capabilities including weather modelling and customer outreach	
	• Cybersecurity: Maintain effective controls to mitigate and prevent significant disruptions, data breach or system failure ○ Improvements will be measured utilizing metrics such as further deployment of cyber tools and enterprise-wide phishing program click rate	

[23] The potential score for each goal category (other than Overarching Goals Framework described above) ranges from zero to twice the target score for the goal category. The potential total score is from zero to 200.

Goal Category and Target Score for Goal Category	Representative Success Measures for Goal Category	SMAP Safety Performance Metrics Linked to Executive Compensation
Financial Performance 25	• Core earnings target	
Operational and Service Excellence 30	• Capital Deployment: Execute grid, technology, electrification and other improvements to deliver safe, reliable and affordable energy consistent with CPUC direction	
	• San Onofre Nuclear Generating Station (SONGS) Decommissioning: Implement SONGS decommissioning milestones including completion of fuel transfer and issuance of Phase II Notice to Proceed and no severity level I, II or III NRC violations	
	• Reliability: Achieve targeted reliability for repair outages as measured by System Average Interruption Duration Index (SAIDI)	
	• Policy: Advocate for effective wildfire policies and obtain approval of 2020 WMP and Safety Certification, advance 2021 General Rate Case and obtain policy outcomes necessary to support Clean Energy and Electric Pathway in support of California's environmental objectives	
	• Customer Service: Manage re-platform on time and on budget	
	• Diversity: Increase diversity of executive and leadership populations	
	• Diversity: Diverse Business Enterprise Spend >40%	

Annual incentive awards are based on corporate and individual performance. Corporate performance is based on accomplishments related to the goal categories established at the beginning of the year. For each goal category, the Compensation Committee assigns a target score and potential score range reflecting the relative weight given that goal category. Some goals have quantitative metrics for determining if the goal was unmet, met or exceeded. Other goals are activity-based or assessed by the quality of the respective outcome, all of which are subject to the judgment of the Compensation Committee.

SPD requested information on what years executive compensation was impacted, how many executives were impacted, and what percentage of their total bonus compensation this affected. For 2020, SCE's year-end performance resulted in an aggregate goal score of 120 across the goal categories for Safety and Resiliency, Financial Performance and Operational Excellence and Strategic Advancement; however, significant safety events due to contractor fatalities and an injury to a member of the public resulted in a 10-point deduction to the goal score for senior vice presidents and above and for certain safety, supply chain and T&D officers. An additional three points were deducted from the

goal scores for all employees (including non-executives) for not meeting the Worker Safety goal within the Safety and Resiliency goal category. As mentioned above, the Compensation Committee has exercised discretion frequently in recent years to reduce or eliminate payouts for not meeting safety goals. Table I-3 below summarizes SCE's annual incentive award deductions for senior vice presidents and above due to safety performance since 2016. For SCE's other executives, the impact of safety performance is largely tied to how closely the respective role and related responsibilities are tied to oversight of the safety events connected to those metrics. During 2020, on average, SCE's senior vice presidents had their EIC awards reduced by 13 points, SCE's vice presidents had their EIC awards reduced by 7 points and all other SCE employees (including directors) had their short-term incentive awards reduced by 3 points. The foregoing represents the average reduction across those respective levels; however, certain executives and directors had more significant reductions than others where their responsibilities were closely connected to the safety performance areas.

Table I-3
Annual Incentive Award Deductions for Safety Performance

Year	Total Deduction for Executive Officers Due to Unmet Safety Goals, Wildfire Resiliency Goals and/or Overarching Goals Framework	Summary of Unmet Safety Goals, Wildfire Resiliency Goals, and/or Overarching Goals Framework
2020	13-point deduction[24]	Three contractor fatalities; third-party contractor seriously injured from contact with line with insufficient clearance; SIF rate worse than target
2019	14-point deduction[25]	Three contractor fatalities; transformer failure that seriously burned a member of the public; DART injury rate worse than target
2018	Annual incentive completely eliminated for SCE's CEO and President;[26] 20-point deduction for other senior officers[27]	Impact of wildfires on communities within SCE's service territory; fatalities of (i) two contractors and (ii) a private tree trimmer who came in contact with a power line; DART injury rate worse than target
2017	17-point deduction[28]	Fatality and a serious injury occurred when members of the public came in contact with downed power wires in separate incidents; DART injury rate worse than target
2016	10-point deduction[29]	Four worker fatalities; DART injury rate worse than target

[24] The 13-point deduction was comprised of: 10-point deduction to the company modifier due to unmet overarching goal for the all senior officers (and certain other officers) due to three contractor fatalities and a third-party contractor serious injury; and Worker Safety portion of the Safety and Resiliency goal category was scored 3 points below target for all employees (including non-executive) due to the SIF rate.

[25] The 14-point deduction was comprised of: 10-point deduction to company modifier due to unmet overarching goals; Safety portion of Operational and Service Excellence goal category was scored 4 points below target due to DART injury rate.

[26] In light of the impact of wildfires on communities within SCE's service area, the Compensation Committee decided, in consultation with management and with its full support and agreement, that no annual incentive award would be paid for 2018 to SCE's CEO and President. This action was not a reflection on the performance of SCE or these officers.

[27] The 20-point deduction was comprised of: 5-point deduction to Safety portion of Operational and Service Excellence goal category due to DART injury rate; 5-point deduction to overall company modifier due to unmet overarching goal; and 10-point deduction to individual performance modifier due to unmet overarching goal.

[28] The 17-point deduction was comprised of: 7-point deduction to Safety goal category due to DART injury rate and 10-point deduction to individual performance modifier due to unmet overarching goal.

[29] The target score for the Safety goal category was 10 points. The worker fatalities and the DART injury rate were independent bases to score zero points for the category (i.e., either by itself would have resulted in a score of zero).

Looking beyond 2020, SCE seeks to further expand our public and worker safety efforts in 2021. SCE's 2021 goals incorporate several changes. For the Safety and Resiliency goal category, SCE increased the weighting from 45 percent to 50 percent. New outcome-based quantitative metrics for wildfire resiliency goals include a new success measure for CPUC Reportable Ignitions, which are a subset of the Fire Ignitions metric in this SPMR. Safety and Resiliency Capabilities was added as a new success measure to further enhance risk reduction through improved data and records, performance and quality management, process management and digital enablement. A Contractor Management success measure was also added to enhance safety and compliance controls and processes for SCE's contractors. A new PSPS success measure was added focusing on a comprehensive improvement plan to enhance customer notifications and other PSPS capabilities. Lastly, a success measure was added for OCP aimed at mitigating public safety risks from downed overhead lines.

4. Bias Controls for the Reporting of the Corporate Goals

SCE's internal audit team works to validate that the reporting of corporate goals and underlying metrics has not been gamed or skewed to support a financial incentive. For the corporate goals, each year, on a sample basis, the internal audit team verifies that the reporting used to determine the STIP and EIC payouts is accurate. This includes obtaining supporting documentation for the reported goal, reviewing and validating the accuracy of the performance standard, metric, or target number used for assessing obtainment of that goal, and comparing the data to internal and/or external sources as applicable to validate the data. The internal audit team also periodically audits other company programs that track metrics such as Employee DART or SIF. These audits include reviewing the program processes and controls, including event and/or injury classifications, to validate the accuracy of the reported rate. The internal audit team is accountable to the Audit and Finance Committee of SCE's Board of Directors, which is comprised of independent members in accordance with the Securities and Exchange Act of 1934. Please refer to Chapter II for a discussion of additional, metric-specific bias controls where applicable.

5. Individual and Group Performance Goals

In addition to company performance, annual incentive awards under the EIC also take into account individual performance. SCE non-represented employees, including executives, have individual performance goals and, in some circumstances, may also have group performance goals. Individual and group performance goals are developed specific to an employee or organizational unit's scope of work, and are intended to align with and support the company's overall corporate goals. Thus, while individual and group performance goals may include safety competencies, they are generally not specific to any of the Safety Performance Metrics outside those already linked to corporate goals.[30] Additionally, to the extent that an individual or group performance goal intersects with one of the Safety Performance Metrics, success or lack of success on that goal would not necessarily impact compensation. For each individual, success on individual and group performance goals is typically determined holistically by the organizational unit's management (or, in the case of senior officers, by the Compensation Committee), which takes into account that individual's performance across all of his or her goals and benchmarking based on a comparison to the performance of that individual's peers within the organizational unit. Any impact on compensation (whether through an annual incentive award or a base salary increase) based on this assessment is subject to management discretion.[31] For executive officers, the compensation impact is decided by the Compensation Committee rather than by management.

D. Interim Risk Mitigation Accountability Report (RMAR) Requirements

In D.19-04-020, the Commission determined that IOUs should include in their annual Safety Performance Metrics Reports some of the information originally envisioned as part of the Risk

[30] Based on SCE's review of all director level and above individual performance plans for 2020, SCE did not identify an instance where a Safety Performance Metric outside those already linked to corporate goals was incorporated into an individual director level or higher performance goal.

[31] The final component of compensation approved each year for director level and above positions is long-term incentive awards. Unlike with annual incentive awards, which are determined by looking back at the prior year performance, long-term incentive awards are typically determined by considering the individual's longer-term performance as well as the company's longer-term goals and needs. None of the Safety Performance Metrics is linked to executive compensation through long-term incentive awards.

Mitigation Accountability Report (RMAR) which is the subject of the SMAP proceeding.[32] Specifically, the IOUs were directed to include an explanation of how the reported safety metrics data reflects progress against the safety goals in their respective RAMP and approved GRC application, and a high-level summary of total estimated risk mitigation spending level as approved in its most recent GRC.

1. How the Safety Metrics Reflect Progress Against SCE's RAMP and GRC Safety Goals

Safety is a core value at SCE. Our safety objectives are to strengthen our safety culture, eliminate serious injuries and fatalities to our workers and the public, and reduce all injuries to ultimately achieve the goal of an injury-free workplace. In some performance areas, SCE has seen a dramatic improvement in its safety results. Since 2011, SCE has achieved more than 60 percent improvement in employee safety performance, as measured by our Employee DART Rate. Similarly, our Contractor OSHA Recordable Rate has improved by more than 67 percent since 2015. However, SCE has more work ahead to ultimately achieve and maintain a strong safety culture and injury-free workplace. In 2020, SCE experienced 16 contractor serious injuries and fatalities (13 serious injuries and 3 fatalities) that were over 38 percent above historical averages. As discussed above, several SCE executives received reduced compensation as a result of the three contractor fatalities in 2020. As noted above in Table I-3, the contractor fatalities resulted in a 10 point deduction to the goal score for senior vice presidents and above and for certain safety, supply chain and T&D officers. SCE's efforts to mitigate contractor serious injuries and fatalities are described in Section II.H. SCE also saw increased levels of wires down and fire ignitions in 2020 which we address in Sections II.B and II.D.

[32] D.19-04-020, p. 32.

Table I-4
Percent Improvement/Decline in SCE's 2020 Metric Performance Compared to Historical Average[33]

Metric Name	2020 Performance	Historical Average	Percent Improvement/Decline in SCE's 2019 Metric Performance Compared to Historical Average	Average Notes
1. T&D Overhead Wires Down	995	991	-0.4%	5 year Average
2. T&D Overhead Wires Down - Major Event Days	2,044	1,555	-31.4%	5 year Average
3. Electric Emergency Response	84%	84%	-0.1%	4 Year Average
4. Fire Ignitions	149	108	-37.5%	5 year Average
14. Employee Serious Injuries and Fatalities	5	5.3	5.7%	10 Year Average
15. Employee Days Away, Restricted and Transfer (DART) Rate	0.90	1.40	35.8%	10 Year Average
18. Contractor OSHA Recordable Rate	0.65	0.95	31.7%	5 year Average
20. Contractor Serious Injuries and Fatalities	16	12	-37.9%	5 year Average
21. Contractor Lost Work Day Case Rate	0.29	-	-	N/A only two years of historical data
22. Public Serious Injuries and Fatalities	12	16.8	28.6%	10 Year Average
23. Helicopter / Flight Accident or Incident	0	1	100.0%	Average represents 1 incident in 2018

Consistent with our 2019 SPMR,[34] SCE uses a form of each of the Safety Performance Metrics in this report to develop the risk bowtie structures which inform the RIDM framework and the mitigation plans to address some of SCE's top risks as identified in the 2018 RAMP filing. SCE is currently revisiting our RIDM framework for our upcoming RAMP report (due in May 2022) which will present any changes.

SCE continues to advance its RIDM framework and improve the quality and availability of safety-related data to enable the company to identify, evaluate, mitigate, and monitor risks and to

[33] For electric emergency response, where a higher value is better, positive values show a percent increase in the metric's performance in the table; for all other metrics where a lower value is better, (*e.g.*, fire ignitions, wires down, SIF, etc.), positive values show a percent decrease in the metric's performance.

[34] *See* SCE's 2019 Safety Performance Metrics Report, Section C.1, pp. 15 – 18.

report on those risks to senior leadership. Senior leadership employs the RIDM framework to review, discuss, prioritize, monitor, and address enterprise risks, and to embed risk considerations into their decision-making and resource allocation process. To transition to a more mature safety culture, we must continue to advance our collective mindset (employees, contractors and the public) about safety from being something we have to do to something we want to do. In Section I.B.1 above, we discuss examples of what SCE is currently doing to further this transition including the advancement of our Wildfire Risk Modeling. As our work continues in this regard, and as our risk management approaches develop and mature, including through SMAP and RAMP, SCE expects to see additional progress reflected in its reported safety metrics data.

2. High-level Summary of SCE's Total Estimated Risk Mitigation Spending Level as Approved in its Most Recent GRC.

Table I-5 and Table I-6 below compares SCE's recorded aggregate operations and maintenance (O&M) expenses and capital expenditures for 2020 to Commission authorized amounts in the 2018 GRC decision for safety, reliability and maintenance activities. Consistent with the approach established for SCE's Interim Risk Spending Accountability Reports, the figures include all programs "authorized or in effect during each record year that were identified as impacting safety or reliability within SCE's Risk Informed Planning Process and Risk Evaluation Methodology filed as part of the 2018 GRC, as well as programs with a maintenance activity."[35] SCE's 2018 GRC encompassed Test Year 2018, and attrition years 2019 and 2020. The Commission issued the 2018 GRC Decision (D.19-05-020) on May 24, 2019 adopting, among other things, a Post-Test Year Ratemaking (PTYR) mechanism that escalates the adopted 2018 CPUC-jurisdictional O&M and capital additions in 2020. The 2020 authorized capital expenditures in this report were derived by using the authorized capital addition escalation percentage as a proxy for adopted attrition-year capital expenditures.[36]

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[35] Refer to Advice Letter 4042-E - Southern California Edison Company's 2018 Interim Risk Spending Accountability Report for additional information on how SCE selected programs and activities that impact safety, reliability and maintenance.

[36] In SCE's 2018 GRC, the Commission approved a PTYR mechanism that escalated 2018 capital additions by 2.49% per year for 2019 and 2020.

Additional discussion of the spending variances for O&M expenses and capital expenditures can be found in SCE's 2020 Risk Spending Accountability Report.[37]

Table I-5
O&M Spending Accountability Report Variances by Category for Safety, Reliability and Maintenance Activities ($000s)

Category	2020 Recorded	2020 Authorized	Recorded Less Authorized Variance	% Variance (Rec. - Auth.)/Auth
Distribution	$352,121	$322,717	$29,404	9.1%
Transmission	$109,711	$106,272	$3,440	3.2%
Generation	$154,409	$171,585	($17,176)	-10.0%
Other	$431,463	$460,283	($28,821)	-6.3%
Grand Total	**$1,047,704**	**$1,060,858**	**($13,153)**	**-1.2%**

Table I-6
Capital Spending Accountability Report Variances by Category for Safety, Reliability and Maintenance Activities ($000s)

Category	2020 Recorded	2020 Authorized	Recorded Less Authorized Variance	% Variance (Rec. - Auth.)/Auth
Distribution	$1,668,871	$1,818,799	($149,928)	-8.2%
Transmission	$884,351	$1,108,328	($223,977)	-20.2%
Generation	$69,479	$109,802	($40,322)	-36.7%
Other	$624,804	$508,590	$116,213	22.9%
Grand Total	**$3,247,505**	**$3,545,519**	**($298,014)**	**-8.4%**

E. Overview of Approved Safety Performance Metrics

In accordance with D.19-04-020, SCE reports on the eleven applicable metrics[38] using the designated definitions and units and including data for the last ten years (2011-2020) where such data exists.[39] SCE provides additional context on each of these metrics below as appropriate.

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[37] Southern California Edison Company's Interim Risk Spending Accountability Report for 2020, April 1 2021.

[38] *See* D.19-04-020, p. 25. *See also id.*, Attachment 1, "IOUs Required to Report" column.

[39] This data is included in Attachment A "SCE 2020 Safety Performance Metrics – Historical Data." SCE is also serving an Excel version of this attachment concurrently with this report.

II.

SCE SAFETY PERFORMANCE METRIC DATA

A. Metric 1: Transmission & Distribution (T&D) Overhead Wires Down[40]

Table II-7
Transmission & Distribution (T&D) Overhead Wires Down

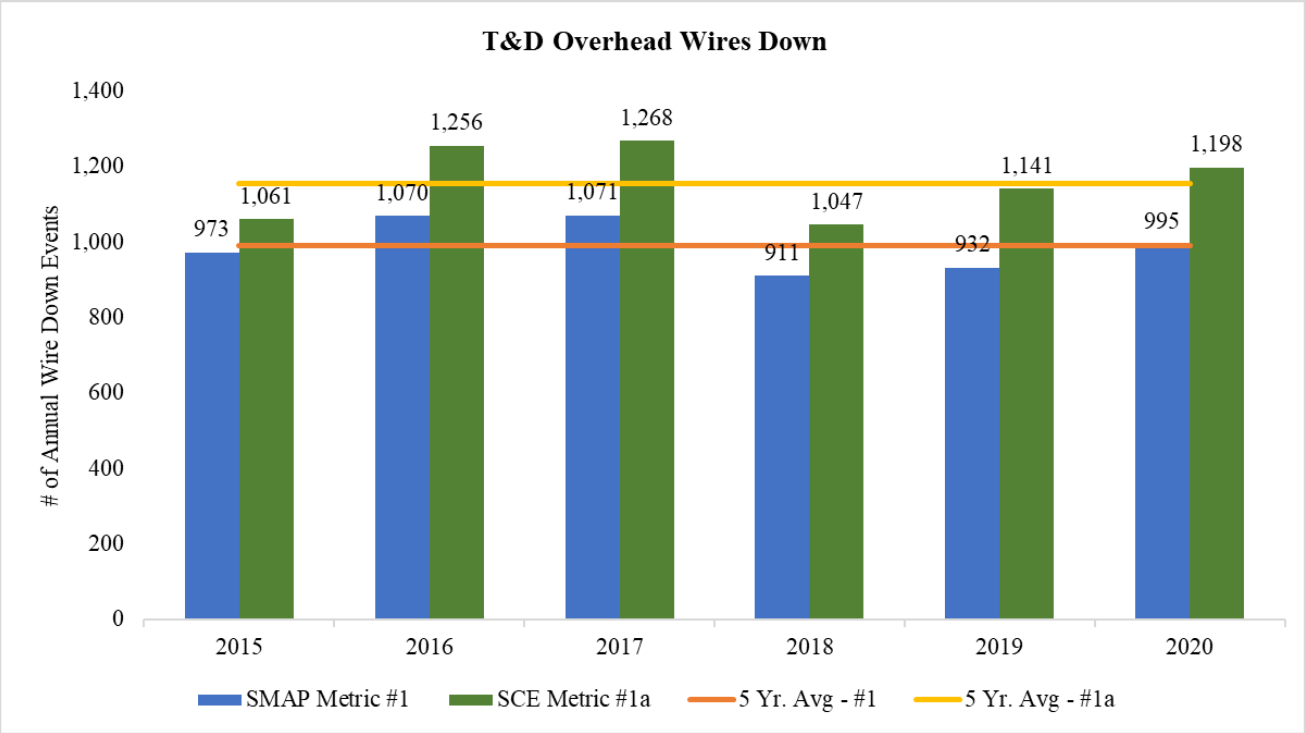
Metric Name	Risks	Category	Units	Metric Description
1. T&D Overhead Wires Down	Wildfire Transmission Overhead Conductor Distribution Overhead Conductor Primary	Electric	Number of Wire Down Events	Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; excludes down secondary distribution wires and "Major Event Days" (typically due to severe storm events) as defined by the IEEE.

1. Metric Data and Discussion

The annual and historical monthly data for T&D Overhead Wires Down is presented below in Figure II-2 and Table II-7, respectively. As shown in Table II-7, the definition for this metric includes both transmission and distribution primary overhead conductors and excludes distribution secondary conductors. As this metric does not include events that occur on Major Event Days (MEDs), SCE is also providing a related metric, "SCE Metric 1a," which supplements Safety Performance Metric 1 by including MEDs. A side-by-side comparison of the metric with and without MEDs is helpful to understand differences in system performance between normal operating conditions and conditions of higher operational or design stress. SCE discusses trends, performance, risk drivers and initiatives to reduce wires down events in Section II.B below. SCE is providing the discussion on Wires Down risk drivers, trends and initiatives to reduce wires down as part of Metric 2- T&D Wires Down – Major Event Days.

[40] Note that SCE is following the same numbering for these metrics as used by the Commission in Attachment 1 to D.19-04-020.

Figure II-2
Annual T&D Overhead Wires Down Metric Data – SMAP Metric 1 and SCE Metric 1a[41]



[41] SCE defines a wire down event as an event where the wire struck the ground or fell within 8 feet and did not contact ground. SCE is developing the ability to parse out events into hit ground or did not hit the ground for future reporting. SCE is focused on the safety concerns that are implicated whenever a wire down incident occurs, regardless of whether the wire happens to physically make contact with the ground. A wire down that does not touch the ground still poses danger to the public and to our workers. Therefore, SCE includes both on-ground and above-ground in our data because both situations present dangers to the communities we serve. SCE thus tracks and provides a more comprehensive set of data than simply wire down incidents that are on-ground or on a foreign object.

Table II-8
T&D Overhead Wires Down – Historical Monthly Data – SMAP Metric 1 Only[42]

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2014	N/A	N/A	N/A	N/A	81	85	64	91	67	71	63	119	**641**
2015	88	55	96	80	74	81	103	67	77	79	78	95	**973**
2016	93	85	109	125	88	80	64	63	100	68	70	125	**1,070**
2017	119	85	113	84	87	83	90	86	112	74	66	72	**1,071**
2018	67	91	99	97	71	112	52	71	72	53	46	80	**911**
2019	110	79	73	67	81	77	84	49	74	40	73	125	**932**
2020	65	88	96	82	92	119	78	104	57	58	99	57	**995**
Avg. By Month	**90**	**81**	**98**	**89**	**82**	**91**	**76**	**76**	**80**	**63**	**71**	**96**	**-**

2. Metric Link to Compensation or Individual or Group Performance Goals

The T&D Wires Down metric is not linked to executive compensation. For a further discussion on how SCE determined which metrics are linked to executive compensation please refer to Section I.C Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [No]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [No]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [No]

3. Metric Specific Bias Controls Discussion

SCE's internal process for validating the T&D Wires Down metric data involves the Wire Down Database where all primary wires down are input for Field Engineers to review and propose mitigations. A repair order is generated for each wire down incident and a trouble man or crew responds to the call. In certain instances where Field Engineers did not input an incident into the Wire Down Database,

[42] Note, the 2014 numbers provided do not include the full year. T&D Wires Down data is available only as of May 2014. SCE provides the monthly historical data for SCE Metric 1a in Attachment A and in the Excel file served concurrently with this report.

SCE will review all Repair Orders and populate the database with any missing ones and verify all other associated information.

B. Metric 2: Transmission & Distribution (T&D) Overhead Wires Down – Major Event Days

Table II-9
Transmission & Distribution (T&D) Overhead Wires Down – Major Event Days

Metric Name	Risks	Category	Units	Metric Description
2. T&D Overhead Wires Down - Major Event Days	Wildfire Transmission Overhead Conductor Distribution Overhead Conductor Primary	Electric	Number of Wire Down Events	Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; includes down secondary distribution wires. Includes "Major Event Days" (typically due to severe storm events) as defined by the IEEE.

1. Metric Data and Discussion

The annual and historical monthly data for T&D Overhead Wires Down – Major Event Days is presented below in Figure II-3 and Table II-10, respectively. As shown in Table II-10 above, the definition for this metric includes both transmission conductor, distribution primary overhead conductor and distribution secondary conductor and does not exclude MEDs. This metric differs from SCE Metric 1a discussed above only in that T&D Overhead Wires Down – Major Event Days includes secondary conductors. SCE is also providing a related metric, "SCE Metric 2a," which differs from Safety Performance Metric 2 by excluding MEDs.

Figure II-3
Annual Transmission & Distribution (T&D) Overhead Wires Down – Major Event Days Metric Data - SMAP Metric 2 and SCE Metric 2a[43]

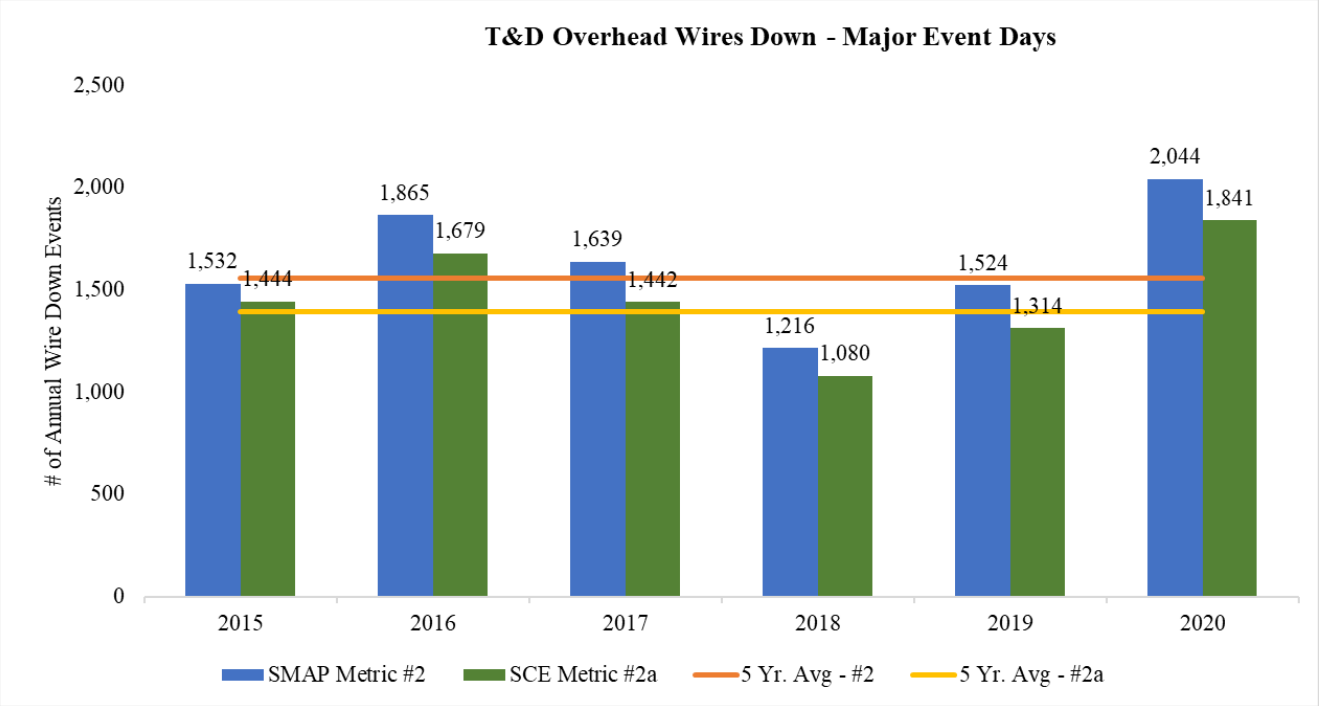


Table II-10
T&D Overhead Wires Down MED – Historical Monthly Data – SMAP Metric 2 Only[44]

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2014	N/A	N/A	N/A	N/A	131	118	100	123	126	101	100	241	**1,040**
2015	132	77	125	109	101	120	152	133	154	139	126	164	**1,532**
2016	228	163	157	205	123	138	116	105	156	167	117	190	**1,865**
2017	241	172	151	121	105	110	125	146	153	103	72	140	**1,639**
2018	124	108	120	130	88	136	68	75	73	113	93	88	**1,216**
2019	115	149	78	119	112	105	120	88	123	125	168	222	**1,524**
2020	105	148	139	152	177	207	135	191	197	209	204	180	**2,044**
Avg. By Month	**158**	**136**	**128**	**139**	**120**	**133**	**117**	**123**	**140**	**137**	**126**	**175**	-

[43] Please see footnote 41 above for SCE's definition of wire down events.

[44] As noted above, 2014 data collection for this metric started in May 2014. SCE provides the monthly historical data for SCE Metric 2a in Attachment A and in the Excel file served concurrently with this report.

In SPD's review of SCE's 2019 SPMR, SPD recommended that SCE "provide context on potential risk drivers for the metrics."[45] The key drivers of wire down events are shown below in Table II-11.[46] SPD also stated that a metric showing the ratio of wire down events to total transmission and distribution lines may be useful for comparison across utilities given the wide variation in their service territories.[47] SCE respectfully submits that the proposed ratio would not be an effective measure for comparison across the IOUs. Notably, these metrics include transmission wires down and primary, secondary, service and unknown distributions wires down. An aggregated ratio without segmenting into the sub-categories described above does not provide a meaningful comparison whether across utilities or year over year for a single utility. The inclusion of MEDs also complicates comparisons, as the IOUs may have different amounts of MEDs depending on weather conditions in their respective territories.

Table II-11
Wire Down Risk Event Drivers

Cause category	Sub-cause category	2015	2016	2017	2018	2019	2020	5 Year Avg (2015–2019)	% over/ under Avg.
Contact from object - Distribution	Veg. contact- Distribution	279	357	384	158	308	424	297	43%
Contact from object - Distribution	Animal contact- Distribution	74	57	53	48	38	70	54	30%
Contact from object - Distribution	Balloon contact- Distribution	115	112	115	134	98	108	115	-6%
Contact from object - Distribution	Vehicle contact- Distribution	227	349	248	267	269	383	272	41%
Contact from object - Distribution	Other contact from object - Distribution	0	1	0	0	1	0	0	-100%
Equipment / facility failure - Distribution	Connector damage or failure- Distribution	84	106	81	75	68	122	83	47%
Equipment / facility failure - Distribution	Splice damage or failure — Distribution	35	28	24	24	28	29	28	4%
Equipment / facility failure - Distribution	Crossarm damage or failure - Distribution	31	26	26	25	35	35	29	22%
Equipment / facility failure - Distribution	Lightning arrestor damage or failure- Distribution	0	0	3	0	2	1	1	0%
Equipment / facility failure - Distribution	Tap damage or failure - Distribution	0	0	4	5	12	10	4	138%
Equipment / facility failure - Distribution	Other - Distribution	685	824	667	423	607	751	641	17%
Wire-to-wire contact - Distribution	Wire-to-wire contact / contamination- Distribution	0	0	1	2	1	7	1	775%
Other- Distribution	All Other- Distribution	0	0	33	53	54	102	28	264%
All Transmission		2	5	0	2	3	2	2	-17%
Total		**1,532**	**1,865**	**1,639**	**1,216**	**1,524**	**2,044**	**1,555**	**31%**

45 Safety Policy Division Review of Southern California Edison's 2020 Safety Performance Metrics Submittal Pursuant to Decision 19-04-020, p. 20.

46 Additional detail on wire down events is provided in SCE's 2021 WMP, Table 2 and 7.1.

47 Safety Policy Division Review of Southern California Edison's 2020 Safety Performance Metrics Submittal Pursuant to Decision 19-04-020, p. 9.

SPD also noted that evaluation this metric would be aided by information concerning (1) swings in reported wires down events from 2015 to 2019 and (2) why there may be seasonal variation in the number of Wires Down events per month. As indicated above in Table II-11, SCE has seen large swings in wire down events from 2015 to 2019 that were caused by vegetation contact, vehicle contact and other distribution equipment failures. As shown in Table II-10, SCE generally sees increased levels of wire down events in January and December primarily due to higher levels of inclement weather (wind and rain). The rest of the calendar year shows a relatively flat trend with some increased levels of wires down from September to November of 2020 which is attributed, in part, to more severe wind conditions in those autumn months.

As shown above in Table II-11, there was an increase in wires down events in 2020 compared to previous years. This increase is attributable in part due to SCE's expanded efforts to capture secondary and service drop wires down events during 2020. In 2020, there were notable increases in wire down events related to contact from vegetation, animal contact, vehicle contact and connector damage or failures. To address these and other wire down causes, SCE has implemented a series of initiatives, including:

- **Energy Theft Leading to Overload**: During FIPA investigations in 2020, SCE experienced an increase of wire downs caused by energy theft overloading[48] service and secondary conductors, which result in the conductors having higher current (amps) then they were designed for. The excess current results in the conductor heating and wakening, leading to the wires failing and causing a wire down and potentially a fire ignition. To address these occurrences, SCE developed an energy theft detection algorithm to proactively identify safety issues resulting from meter bypasses. Model predictions are generated monthly for field investigation and mitigation of any observed hazards. Since implementation in mid-2019, this process has positively identified 158 hazards, 36% of which were located in HFRA.

[48] Energy theft overloading occurs when someone illegally hooks into a power supply, hooks up a line that has been disconnected, or tampers with a meter to avoid recording electricity usage.

- **Overhead Conductor Program:** SCE uses historical wire-down events for a predictive analytics model to inform the scope for the OCP. The OCP was first discussed in SCE's 2018 GRC to address public safety risks associated with overhead conductors. The OCP replaces small conductors and installs protective devices to limit the amount of damage that conductors experience during fault conditions and mitigate the risk of failure. Additional details on this program can be found in SCE's Test Year 2021 GRC testimony.[49]
- **Inspection Programs:** SCE has several inspection and remediation programs to address the degradation of equipment and structures related to wear and tear from normal operations and external factors such as weather or third party caused damage. These programs help mitigate in-service malfunction or failure which can lead to potential wire down and ignition events. A more detailed discussion on these programs is provided in Section II.D.1 and in SCE's 2021 WMP.[50]
- **Long Span Initiative (LSI) Remediation:** SCE uses Light Detection and Ranging Technology (LiDAR) to identify potential "long-span" risks on the distribution overhead system and remediate the highest risks following field investigation. "Long-spans" consist of distribution circuit spans of significant length or complex configuration (e.g. spans with mixed conductors, spans that have a sharp angle, or spans that transition between vertical and horizontal configuration) that present the highest risk of conductor clash in adverse weather conditions. LiDAR helps identify locations with conductor clashing (i.e. wire-to-wire contact) which may result in sparks, wire-down events and ignitions. Options for remediation based upon the specific details of each span and field conditions include line spacers between conductors, alternate construction methods (such as ridge pin or box construction) to increase spacing, wider crossarms to increase spacing, inter-set poles, and covered conductor. In 2020, SCE started to process LiDAR information on its distribution long-spans at the highest risk locations within the HFRA to create initial scope for field validation and remediation. In 2021, SCE is continuing the LSI Remediation work and currently estimates field validating and

[49] *See* SCE-02 Vol. 01 Part 1 – Distribution Infrastructure Replacement.

[50] *See* SCE's 2021 WMP, Section 7.3.4 Asset Management and Inspections, pp. 230 – 253.

remediating 300-600 locations, subject to validation findings, resource constraints, and other execution risks. Over the next three years, SCE plans to remediate the highest risk spans, with the remaining remediations to occur through 2024 or through the WCCP. Additional details on this program can be found in SCE's 2021 WMP.[51]

- **Secondary Connector and Conductor Failure:** As part of its FIPA investigations in 2020, SCE noted a number of downed conductors related to animal contacts involved secondary exposed connectors. SCE issued a bulletin to field staff to inform them how and when to cover secondary connectors.
- **Vegetation Management:** SCE has several vegetation management initiatives focused on preventing wire down events and ignitions. Some of these initiatives are described below and additional initiatives are discussed in the next section regarding Fire Ignitions.
    - **Hazard Tree Management Program (HTMP):** SCE's analysis of Tree-Caused Circuit Interruptions (TCCIs) data revealed that a significant number of faults and wires downs were caused by live trees "falling in" or branches and fronds from green trees "blowing in" to lines and equipment. These trees frequently are outside of the compliance clearance zone as they are visually healthy and meet clearance requirements, but still pose a fall-in risk, depending on condition of the tree and other site-specific factors. Branches or fronds getting dislodged from trees near electrical facilities also present a higher risk of blowing into the lines and equipment and causing faults that can potentially initiate an ignition. SCE initiated the HTMP which entails detailed inspection and evaluation of trees that pose risks despite trimming and pruning, and appropriate mitigations up to removal of these trees. SCE performed approximately 100,000 assessments in 2020. The HTMP will continue in

[51] *See* SCE's 2021 WMP, Section 7.3.3.12.1, pp. 221 – 222.

2021 with 150,000 to 200,000 HTMP assessments. Additional information on this program can be found in SCE's 2021 WMP and GRC Track 3 testimony.[52]

- **Dead, Dying and Diseased Tree Removal:** The Dead, Dying and Diseased Tree Removal program (formerly called the Drought Relief Initiative) was established as a result of the epidemic of dead and dying trees brought on by climate change and years of drought conditions. Both GO 95[53] and Public Resources Code section 4923[54] address the mitigation of hazards posed by dead or significantly compromised trees. Under this program, SCE conducts patrols in HFRA to identify and remove dead, dying, or diseased trees affected by drought conditions and/or insect infestation. All trees within striking distance of SCE overhead facilities that are dead or expected to die within a year are removed. In 2020, SCE completed its planned Dead, Dying and Diseased Tree Removal assessments in accordance with the WMP schedule and at year end had mitigated 95% of active inventory. In 2021, SCE targets removal of 90% of active inventory within six months. Active inventory includes those trees which SCE can access and has authorization to remove. Additional information on this program can be found in SCE's 2021 WMP.[55]

2. Metric Link to Compensation or Individual or Group Performance Goals

The T&D Wires Down – MED metric is not linked to executive compensation. For a further discussion on how SCE determined which metrics are linked to executive compensation please refer to Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [No]

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[52] *See* SCE's 2021 WMP, Section 7.3.3.12.1, pp. 274 – 276 and A.19-08-013 SCE Tr.3-01, Vol. 01 Direct Testimony in Support of Recovery of 2020 Wildfire Mitigation Regulatory Costs & Grid Safety & Resiliency Program Costs Recorded in Various Memorandum and Balancing Accounts, pp. 94 – 121.

[53] CPUC General Order 95, Rule 35 Appendix E - Recommended minimum clearances that should be established, at time of trimming, between the vegetation and the energized conductors and associated live parts where practicable.

[54] Cal. Pub. Res. Code § 4293 - PRC 4923: clearance maintenance of distances between vegetation and conductors.

[55] *See* SCE's 2021 WMP, Section 7.3.3.12.1, pp. 276 – 277.

- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [No]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [No]

3. Metric Specific Bias Controls Discussion

For additional discussion on controls around primary wire down metric data please refer to Section II.A.3.

C. Metric 3: Electric Emergency Response

***Table II*-12**
Electric Emergency Response

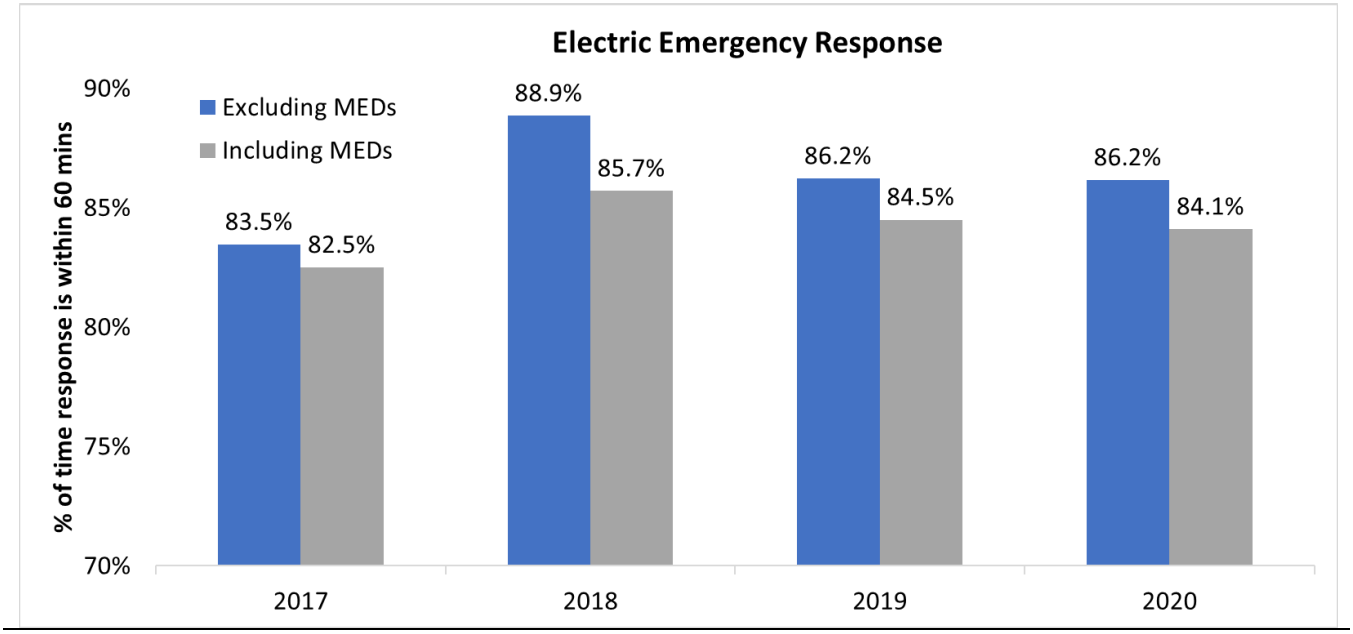
Metric Name	Risks	Category	Units	Metric Description
3. Electric Emergency Response	Wildfire Overhead Conductor Public Safety Worker Safety	Electric	% of time response is within 60 mins	The percent of time utility personnel respond (are on-site) within one hour after receiving a 911 (electric related) call, with on-site defined as arriving at the premises to which the 911 call relates.

1. Metric Data and Discussion

The annual data for Electric Emergency Response is presented below in Figure II-4.[56] The metric data below is specific to 911 calls as defined as those calls that come in through a public agency (*e.g.*, local police and fire departments and California Highway Patrol) and where the agency field official officer commits to standing by until SCE arrives on scene. SCE notes that the data provided in our previous report inadvertently excluded 911 response times for MEDs. SCE has updated the data below and is providing 911 response times including and excluding MEDs.

[56] SCE provides the monthly historical data in Attachment A and in the Excel file served concurrently with this report.

Figure II-4
Annual Electric Emergency Response Metric Data[57]



The Electric Emergency Response metric measures SCE's ability to respond quickly to 911 calls and to minimize the exposure time of the public to any potential incidents including failed equipment and wires down. SCE has maintained high performance over the last several years and continues to explore ways to maintain and improve performance. The overall response time consists of three steps: 1) the average handle time of the call at the call center, 2) the time to identify and dispatch SCE resources to respond, and 3) the time for the dispatched resource to respond.

SCE's Customer Contact Center (CCC) takes several steps to efficiently minimize the average handle time for 911 calls. The 911 calls are designated the highest priority of all calls received by the CCC and promptly assigned to an Energy Advisor (ENA). All employees hired for the CCC must successfully complete 911-Police/Fire Agency Trouble Order training on how to handle incoming calls from police and fire agencies. The training covers the pertinent information to gather from the agencies calling and scenarios on how to issue different trouble orders. ENAs also have access to Trouble Order Resources in a knowledge management database that provides additional 911 order processing steps and related information.

[57] This data represents the time a 911 call is received until the time utility personnel is on site.

The ENA will issue a trouble order that is submitted to our dispatch centers who play a critical role in our response time for all emergency calls. Success is measured based on quality control, location identification and dispatch of traditional and non-traditional responders in a timely and safe manner. SCE expanded training to additional field personnel in 2017 to augment the team available to respond to 911 calls. While these supplemental personnel are considered non-traditional responders since they are not trained to clear wire down events, they can arrive on scene first and have been trained on actions to ensure the public stays clear of the impacted area until a traditional responder arrives on scene. The dispatch operators are also able to use Samsara, a vehicle tracking program, to promptly locate the closest available traditional and non-traditional responders for dispatch.

2. Metric Link to Compensation or Individual or Group Performance Goals

The Electric Emergency Response metric is not linked to executive compensation or performance goals. For a further discussion on how SCE determined which metrics are linked to executive compensation please refer to Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [No]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [No]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [No]

3. Metric Specific Bias Controls Discussion

SCE has instituted processes to validate the Electric Emergency Response metric data for internal purposes. Absent a recorded arrival time for the SCE first responder, the Dispatch Supervisors research the call using Samsara vehicle tracking and Outage Management System verification to validate the arrival time.

D. Metric 4: Fire Ignitions

***Table II*-13**
Fire Ignitions

Metric Name	Risks	Category	Units	Metric Description
4. Fire Ignitions	Overhead Conductor Wildfire Public Safety Worker Safety Catastrophic Event Preparedness	Electric	# of ignitions	The number of powerline-involved fire incidents annually reportable to the CPUC per Decision 14-02-015. A reportable fire incident includes all of the following: 1) Ignition is associated with a utility's powerlines and 2) something other than the utility's facilities burned and 3) the resulting fire traveled more than one meter from the ignition point.

1. Metric Data and Discussion

The annual and historical monthly data for Fire Ignitions is presented below in Figure II-5 and Table II-14, respectively.

Figure II-5
Annual Fire Ignitions Metric Data by HFTD[58]

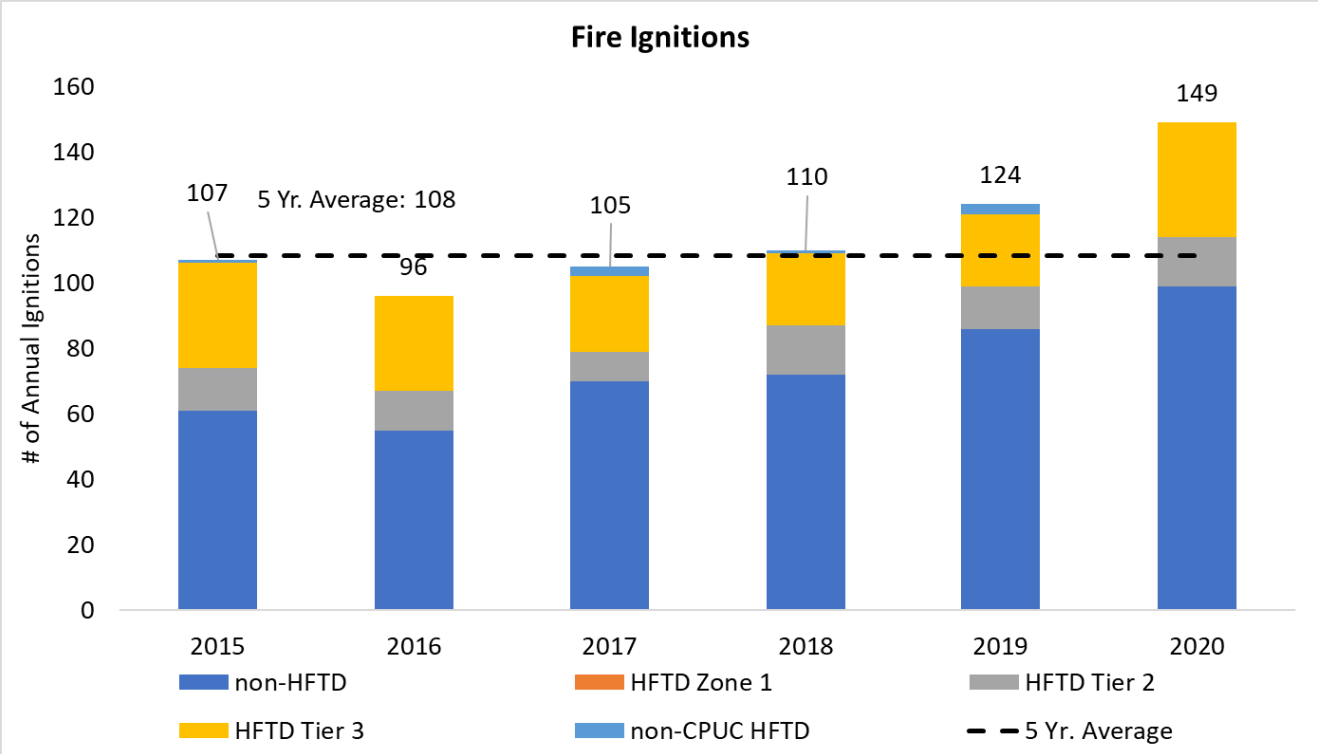


Table II-14
Fire Ignitions – Historical Monthly Data[59]

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2014	N/A	N/A	N/A	N/A	1	6	6	6	5	3	6	6	**39**
2015	2	2	4	20	17	19	11	7	8	7	8	2	**107**
2016	4	10	3	14	8	16	6	4	9	11	5	6	**96**
2017	4	1	6	9	17	21	15	13	7	6	3	3	**105**
2018	4	6	2	14	8	19	11	13	6	16	6	5	**110**
2019	1	1	5	15	7	23	15	20	20	7	9	1	**124**
2020	4	4	8	4	12	41	16	20	8	12	12	8	**149**
Average by Month	**3**	**4**	**5**	**13**	**10**	**21**	**11**	**12**	**9**	**9**	**7**	**4**	-

[58] This data does not include any fire ignitions that are currently under claims investigation or subject to potential or pending litigation. Data collection started in May 2014.

[59] SCE provides the monthly historical data in Attachment A and in the Excel file served concurrently with this report.

While wildfires can occur across the SCE service territory any time of the year, the frequency is highest between May and October due to the warmer and drier conditions in the summer and early fall months increasing the risk of a significant conflagration occurrence. The autumn months have typically been viewed as most susceptible to wildfire activity due to the dry, fierce winds that blow across the state preceded by hot and dry summer conditions leading to expanses of dried vegetation. However, climate change has contributed to a trend where the wildfire season is beginning earlier and ending later each year.

This trend continued in 2020 where Contact from Object events in June significantly increased. This may be attributed to the increase of "at home" graduation celebrations as well as an unusually strong, late season Santa Ana wind event combined with warm temperatures in Southern California. While the region saw the return of a typical June-gloom weather pattern later in the month, temperatures still averaged above normal across the region. Fire activity throughout the SCE service territory continued to increase in June as the vegetation became drier. These conditions contributed to the increase in fire ignitions totaling 149 in our service territory in 2020.

Ignition events are captured and reported under the following drivers: Contact from Object (CFO), Equipment Facility Failure (EFF), Contact Between Third Party Facility on Pole and Supply Lines, Contamination, Normal Operation, Other, Unknown, Vandalism/Theft and Wire-Wire Contact. The historical data for ignitions is shown below in Table II-15, consistent with data provided in SCE's 2021 WMP.[60]

[60] Refer to SCE's 2021 WMP, Tables 2 and 7.2.

Table II-15
Fire Ignitions by Risk Event Category

Risk Event Category	2015	2016	2017	2018	2019	2020
1. Contact from object	54	48	56	71	66	67
2. Equipment / facility failure	21	40	31	27	36	60
3. Wire-to-wire contact	1	1	3	3	8	5
4. Contamination``	1	0	1	0	3	0
5. Utility work / Operation	0	0	0	0	0	0
6. Vandalism / Theft	4	0	0	1	6	6
7. Other	4	1	1	0	4	7
8. Unknown	22	6	13	8	1	4
Total	**107**	**96**	**105**	**110**	**124**	**149**

SCE continues to analyze the risk events which have shown increases in 2020 for possible mitigation improvements (see Section I.B.2 for a discussion on the FIPA process). The following are several key programs that SCE is implementing to address fire ignitions. Additional details on these and other SCE initiatives and work activities to minimize fire ignitions can be found in the Test Year 2021 GRC testimony and 2021 WMP.

- **Distribution Fault Anticipation (DFA):** As faults are the primary source of utility-caused ignitions, the early detection and remediation of such faults (*i.e.*, incipient faults) is crucial. DFA helps SCE detect events early by utilizing electronic devices that monitor electrical system measurements to recognize current and voltage signatures indicative of such failures. This capability allows for timely identification and remediation and reduction of potential ignition incidents. In 2020, SCE monitored and evaluated reported events for the initial 60 units that were installed starting in 2019 and into 2020. In 2021, SCE plans to install 150 additional units in the HFRA and continue monitoring the 60 installed unit base. These additional units will allow for expanded DFA

coverage in the HFRA. Additional information on this program can be found in SCE's 2021 WMP.[61]

- **Covered Conductor:** Analysis of historical ignition and fault data in the HFRA showed that contact from objects (such as vegetation, metallic balloons, or debris) and wire-to-wire faults were associated with approximately 60% of suspected wildfire initiating events. Additionally, these fault conditions can sometimes cause conductor failures resulting in energized wire-down events which, in turn, could result in ignitions from electrical arcing in the air or on the ground. From 2015 to 2019, 10% of ignitions were due to conductor failures. The Wildfire Covered Conductor Program (WCCP) is SCE's primary grid hardening wildfire mitigation solution. The use of covered conductor in HFRAs is expected to reduce the wildfire ignition risks associated with overhead electrical distribution system facilities. The WCCP involves targeted replacement of existing bare overhead conductor in HFRA with covered conductor. WCCP also requires pole upgrades in certain circumstances since covered conductor is heavier and has a larger cross-sectional area than bare conductor. Additionally, when poles cannot meet loading requirements and require replacement, the WCCP utilizes fire-resistant poles (FRPs), which include composite poles with a fire-protective shield, fire-resistant wood poles, or other fire-resistant technologies, for the replacements. WCCP also involves removal of existing electrical equipment attached to trees, including overhead conductors.

  In 2020, SCE completed 965 circuit miles, exceeding its WMP target of 700 circuit miles. In 2020, SCE replaced approximately 6,090 poles with FRPs in HFRA, exceeding its WMP target of replacing 5,200 poles. Covered conductor has already shown its effectiveness since the program's implementation. For example, when a vehicle hit a pole and caused an energized 16kV covered conductor to fall into adjacent trees, no fault or ignition occurred. With the ongoing wildfire risks in California and the expected risk reduction benefits of covered conductors, SCE targets installation of 1,000 circuit miles of covered conductor in HFRAs in 2021. In 2021, when identified for

[61] *See* SCE's 2021 WMP, Section 7.3.2.2, pp. 194 – 195.

replacement in WCCP or otherwise (such as in post-fire restoration work), SCE will continue to install FRPs in HFRA. Additional information on this program can be found in SCE's 2021 WMP.[62]

- **Undergrounding Overhead Conductor:** In 2021, SCE's evaluation and installation of targeted undergrounding of overhead conductors shall continue. As noted earlier, overhead wire contact with objects (such as vegetation, metallic balloons, or debris) and wire-to-wire faults were associated with approximately 60% of suspected wildfire initiating events. From 2015 to 2019, 10% of ignitions were due to conductor failures. In 2020, SCE's efforts were focused on developing and refining the methodology for targeted undergrounding that balances risk reduction with the costs and operational timing. SCE evaluated circuit segments based on multiple criteria including wildfire risk scoring from WRRM, PSPS impacts (including circuits that have experienced multiple PSPS events), terrain, grid topography, construction complexity associated with undergrounding, and cost. SCE also consulted with local districts and reviewed egress in areas where poles and overhead facilities inhibit evacuation should a fire occur. In addition, SCE collaborated with communities to assess areas where customers may require electric service to provide essential health and safety services. In 2021, SCE plans to complete four to six miles of targeted undergrounding. Additional discussion can be found in SCE's 2021 WMP.[63]

- **C-Hooks:** In 2021, SCE is initiating a program to replace C-Hook insulator attachment hardware from transmission structures in HFRA. C-Hook failure can lead to a downed high voltage wire posing wildfire and public safety risks. The 2018 Camp Fire is believed to have been started by the failure of a C-Hook. The C-Hooks installed on SCE's system are aged and deteriorate over time due to the excessive wear that occurs when a C-Hook rubs against the hanger plate of the tower. C-Hooks are also difficult to inspect, even with aerial inspections, which increases the uncertainty of detecting a potential failure. SCE is proactively replacing its remaining C-Hooks in accordance with current standards and to mitigate against potential ignition. SCE is replacing a portion of the C-

[62] See SCE's 2021 WMP, Section 7.3.3.3.1, pp. 210 – 213.

[63] See SCE's 2021 WMP, Section 7.3.3.16.1, pp. 224 – 225.

Hooks in the HFRA during planned maintenance work on the structures they are mounted on, or during other planned project-related work. SCE targets replacement of C-Hooks on 40 to 60 structures in 2021. Additional discussion can be found in SCE's 2021 WMP.[64]

- **Universal Plastic Polymer Insulators:** The first rain of the season in 2020 resulted in faults occurring in Universal Plastic Polymer Insulators which triggered pole top fires. SCE is utilizing its Distribution Fault Anticipation (DFA) and Early Fault Detection (EFD) to monitor and remediate these faults. Furthermore, SCE is analyzing potential replacement options for these insulators.
- **Overhead Transformer Bushing Connection Failure:** Due to certain ignitions events caused by over-tightening the connections at the time of installation in 2020, SCE issued a bulletin to field staff warning of the risks associated with over-tightening and is engaging with the manufacturer to assess redesign options to mitigate those risks.
- **Inspections:** SCE has several inspection and remediation programs that are based on legal mandates. These include detailed inspections of SCE's overhead distribution and transmission electric system in compliance GO 165[65] and the rules and regulations of the North American Electric Reliability Corporation (NERC),[66] Western Electricity Coordinating Council (WECC) and the California Independent System Operator (CAISO).
- To target wildfire risks more effectively, SCE has undertaken distribution asset inspection programs in the HFRA that exceed mandated requirements.
    - One example includes High Fire Risk-Informed (HFRI) Inspections. HFRI Inspections are risk-informed inspection of the overhead distribution and transmission system. They are performed both from the ground and aerially (using drones and helicopters) to provide a 360-degree view of the system infrastructure. The inspection criteria include questions that are set based on fault, near misses and ignition analyses to help identify equipment conditions or

64 See SCE's 2021 WMP, Section 7.3.3.15.1, pp. 223 – 224.

65 GO 165 - Overhead Detailed Inspection and ground inspection requirements.

66 NERC, WECC and CAISO rules and regulations. NERC/WECC rule FAC-501-WECC-2 provides the minimum requirements for transmission maintenance and inspections. CAISO Transmission Control Agreement, appendix C provides maintenance standards.

attributes that potentially increase wildfire risks. SCE continually enhances its HFRI inspections based on the latest data and ignition risk analysis.[67]

- ***Infrared and Corona Inspections:*** Deteriorated connection points on electrical equipment such as conductors, insulators, splices or connectors can cause localized hot spots that can lead to failures and ignitions risks if left unmitigated. These conditions are often not visible to the human eye and may not be detected even by detailed visual inspections. In 2020, SCE exceeded its initial target of inspecting 50% of overhead distribution circuits in the HFRA that were not inspected in 2019 and completed infrared inspections of 5,900 circuit miles. Out of that total, 1,454 circuit miles were inspected in areas that posed increased fuel driven and wind-driven fire risk primarily due to elevated dry fuel levels. In 2021, SCE plans to complete infrared inspections of its remaining distribution overhead lines in the HFRA.[68]
- In 2019, SCE initiated infrared and corona inspections of its overhead transmission system to detect thermal abnormalities that are leading indicators of faults. Helicopters are used for these inspections due to the long distances between structures and because these assets are frequently located on rugged terrain. In 2020, SCE's transmission infrared and corona inspection program inspected 1,178 circuit miles in and around the HFRA. In 2021, SCE targets performing infrared and corona inspections on 1,000 transmission overhead circuit miles in the HFRA.[69]
- ***Generation and Substation Inspections:*** In 2020, SCE studied potential sources of ignition from major substation assets and developed recommendations for substation equipment inspections and maintenance. This study concluded at the end of 2020 and found animal contact to present the highest risk of causing a fire which spreads outside the substation. As a result, SCE plans to install additional animal protective covers at various substations.

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67 Additional information on these inspections can be found in SCE's 2021 WMP, Section 7.3.4.9.1, pp. 238 – 242 and Section 7.3.4.10.1, pp. 244 – 248.

68 *See* SCE's 2021 WMP, Section 7.3.4.4., pp. 234 – 235.

69 *See* SCE's 2021 WMP, Section 7.3.4.5, pp. 235 – 237.

Based on findings, SCE also will be increasing the frequency of Predictive Maintenance Assessments (PMA) at 40 substations in HFRAs. The additional PMA inspections are expected to start in 2022.[70]

- Deterioration of electrical lines and equipment in generation facilities pose fault and ignition risks. Because SCE's generation facilities are often located in or near heavily forested areas, wildfire propagation in these areas could affect critical power generation infrastructure and equipment. In 2021, SCE will continue its inspection of those generation-related assets in the HFRA, including powerhouses, substations, pumps and identification of remediations to reduce the risk of wildfire ignition.[71]

- **Vegetation Management:** As noted above in Section II.B.1, SCE has several vegetation management initiatives that work to prevent wire down events and potential ignitions. Another initiative that was not discussed in the Wire Down Events section is Expanded Pole Brushing. SCE removes vegetation around poles to create 10-foot radial clearings (when attainable) at the base of its poles in HFRA and consistent with Public Resources Code § 4292.[72] Fast growing vegetation at the base of poles and structures can provide the fuel to convert a spark from equipment failure into a fire and also risks the fire propagation, especially during dry and windy conditions. Moreover, poles with adjacent brush are more likely to be affected by a wildfire impeding power restoration and reconstruction efforts. SCE has historically brushed approximately 80,000 distribution poles annually. Due to the increasing wildfire risks, SCE brushed approximately 230,000 poles in 2020. In 2021 and beyond, SCE expects to exceed 230,000 distribution poles brushed in the HFRA.[73]

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[70] *See* SCE's 2021 WMP, Section 7.3.4.9.2, pp. 242 – 243.

[71] *See* SCE's 2021 WMP, Section 7.3.4.15, pp. 252 – 253.

[72] Cal. Pub. Res. Code § 4292 (Requiring utilities in certain areas to "maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such pole or tower.")

[73] *See* SCE's 2021 WMP, Section 7.3.5.5.1, pp. 261 – 262.

2. Metric Link to Compensation or Individual or Group Performance Goals

The Fire Ignitions metric was not linked to executive compensation in 2020. However, as noted above in Section I.C.3, 2021 CPUC reportable ignitions in HFRA has been integrated as part of SCE's 2021 corporate goals. For a further discussion on how SCE determined which metrics are linked to executive compensation please refer to Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [No]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [No]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [No]

3. Metric Specific Bias Controls Discussion

All potential ignitions, other than those under SCE's claims investigations, are reviewed by a team of engineers, analysts, and SCE senior management to confirm ignitions are documented and analyzed to determine if the ignition meets the Commission's reportable fire ignitions definition.

E. Metric 14: Employee Serious Injuries and Fatalities (SIF)

***Table II*-16**
Employee SIF

Metric Name	Risks	Category	Units	Metric Description
14. Employee Serious Injuries and Fatalities	Employee Safety	Injuries	Number of Serious Injuries and Fatalities	A work-related injury or illness that results in a fatality, inpatient hospitalization for more than 24 hours (other than for observation purposes), a loss of any member of the body, or any serious degree of permanent disfigurement.

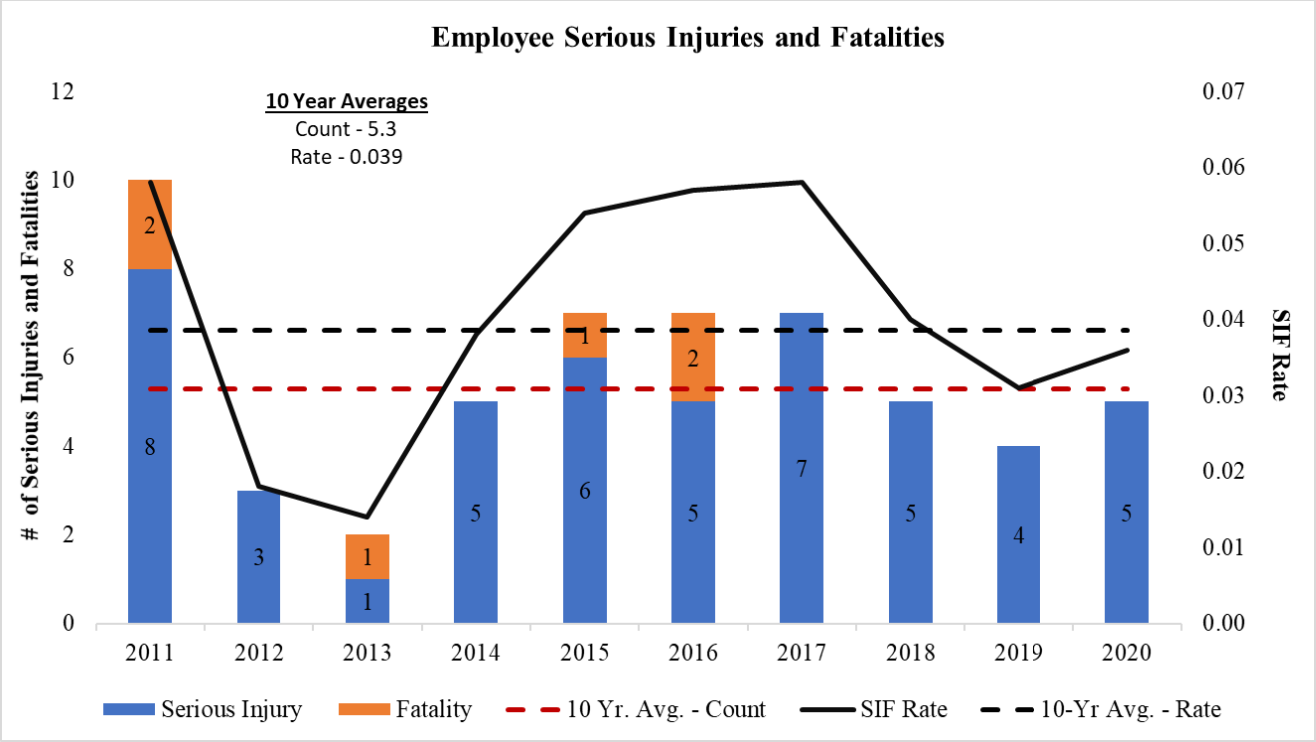
1. Metric Data and Discussion

The annual data for Employee SIF is presented below in Figure II-6.[74] In its review, SPD observed that metrics such as SIFs would be more useful if they were expressed as rates rather than raw

[74] SCE provides the monthly historical data in Attachment A and in the Excel file served concurrently with this report.

numbers.[75] Accordingly, SCE has included the Employee SIF rate in Figure II-6. SCE has been seeing a downward trend in this data in over recent years. In 2020, SCE saw a slight increase in SIFs and SIF rate; however, both were still 6% and 7%, respectively, below historical averages.

Figure II-6
Annual Employee SIF Metric Data[76]



With respect to SPD's recommendation that SCE "provide context on potential risk drivers for the metrics,"[77] SCE previously identified seven primary drivers that impact employee and contractor safety in our 2018 RAMP report. These included: 1) Incorrect Operations: System Operation, 2) Incorrect Operations: Other, 3) Hazard Identification Failure, 4) Incorrect Operations: Vehicle Operation,

[75] Safety Policy Division Review of Southern California Edison's 2020 Safety Performance Metrics Submittal Pursuant to Decision 19-04-020, p. 20.

[76] SCE notes that Cal OSHA has revised their definition for Employee Serious Injuries and Fatalities. Changes to the Definitions of Serious Injury and Illness and Reporting to Cal/OSHA (AB 1804 and 1805). Accessible at: https://www.dir.ca.gov/dosh/Serious-injury-FAQ.html. SCE is presenting the data using the SMAP definition in Table II-16. SCE experienced 7 employee serious injuries using the updated definition in 2020.

[77] Safety Policy Division Review of Southern California Edison's 2020 Safety Performance Metrics Submittal Pursuant to Decision 19-04-020, p. 20.

5) Process/System Design Failure, 6) Fitness for Duty Issues, and 7) Lack of Skills and Qualifications. SCE's 2022 RAMP report shall be filed on May 15, 2022 with an updated discussion of the risk drivers impacting employee and contractor safety.

At SCE, safety is our highest value. SCE has in place a numerous safety programs and initiatives designed to maintain and improve worker safety. SCE's vision is to strengthen our culture, eliminate serious injuries and fatalities, and reduce all injuries. Edison Safety provides guidance, governance, and oversight of the company's safety programs and activities focused on public, contractor and worker safety to accomplish the common goal of creating an injury-free workplace. This includes developing and managing programs to meet requirements outlined by governing regulatory agencies including Occupational Safety and Health Administration (OSHA) and the California Division of Occupational Safety and Health (Cal/OSHA), learning from safety incident evaluations, tracking and analyzing the company's safety data and records, managing and implementing SCE's Safety Culture Transformation, as well as managing all other employee (field and office) and contractor safety programs and standards.

Edison Safety also partners with SCE operating units (OUs) to ensure that each OU's activity-specific safety programs meet applicable regulatory requirements. SCE's Field Safety division partners with OUs in developing, maintaining, and monitoring field safety programs and activities that are specific to the work in their area of responsibility. The work focuses on programs specifically designed for field employees in T&D, Generation, and Operational Services to ensure that the Accident Prevention Manual, safety programs, policies, incident reporting, and close calls are being updated and maintained.

Below we discuss some examples, non-exhaustive, of programs and initiatives that address these key risk drivers impacting employee safety. In addition SCE discussed two metric use case examples, Safety Predictive Analytics and the Risk Based Safety Program, in Section I.B.1 aimed at reducing employee injuries and fatalities. SCE also discussed our cause evaluation, safety culture transformation and industrial and office ergonomics programs in our 2019 SPMR.[78]

[78] Southern California Edison Company's 2019 Safety Performance Metrics Report, pp. 4 – 5.

Safety Leadership Development: Safety Leadership Development training is provided to all T&D employees who enter a supervisory role, including represented employees in Foremen positions. Safety Leadership Development provides these employees with important information on their legal responsibilities for the safety of the crews under their direction, and methods for sharing best practices for improving safety on the job site.

Safety Meetings and Stand-Downs: Regularly scheduled Safety Meetings with T&D employees provide an opportunity to discuss important safety topics, such as changing tools and methods, safe operation of vehicles and equipment, and lessons learned from incidents. Safety Meetings, Significant Safety Event Calls, and Safety Stand-Downs play a vital role in conveying the importance SCE places on safety. They also provide a venue to disseminate valuable and practical information to improve employee safety.

Safety Congresses and Teams: Safety Congresses provide a forum for employees to generate and discuss improvements to current safety practices and programs, exchange ideas, work through problematic safety concerns and elevate those concerns directly to senior management. Safety Congresses serve as direct, in-person communications of safety messages and programs to employees in T&D. Strengthening lines of safety communication helps to enhance awareness of safety issues as a first step towards mitigating employee accidents and injuries.

Therapeutic Exercise, Stretching, and Warm-up Programs: Edison Safety provides project management and guidance to employees participating in SCE's therapeutic exercise, stretching, and warm-up programs. These comprehensive programs are designed to help reduce and/or prevent employee injuries resulting from strain or sprain of a tendon, ligament, or muscle, and are primarily targeted at T&D field employees. Therapeutic exercise includes daily stretching and injury-prevention calisthenics in a group setting or individually in the field, for approximately fifteen-to-twenty minutes, once the work shift begins. Consistent conditioning and stretching better prepare employees for the strenuous work activities they perform daily and may reduce soft tissue injuries.

Incident Conference Calls: T&D conducts Monthly Incident Conference Calls (MICC) to review recent incidents, focus on corrective actions, and discuss preventative measures. The monthly calls

include all distribution field personnel. Personnel involved in the incident discuss the details, including the cause, key safety information, contributing factors, and lessons learned. In addition, the call highlights an example of excellent craftsmanship and promotes safety conversations across all levels

Safety Standards, Programs and Policies: SCE routinely reviews its safety standards, programs, and policies for accuracy, effectiveness, and relevancy. Some examples of these programs include: Bloodborne Pathogens Exposure Control Standard, Chemical Management, Confined Space Program, Fall Protection Standard, Hazardous Energy Control, Hearing Conservation Program, Heat Illness Prevention Program, Hot Work Program, Injury and Illness Prevention Program, Respiratory Protection Program and Safety Incident Management Standard.

As described in our comments in the SMAP Rulemaking Proceeding (R.20-07-013), SCE is moving to the Edison Electric Institute (EEI) Safety Classification and Learning (SCL) Model for actual and potential employee SIFs and recommends this model should be adopted for the SPMR on a going forward basis.[79] The SCL Model enhances our ability to benchmark with utilities outside of California and leverages the specialized knowledge and experience of EEI's collection of industry safety leaders and technical experts. The SCL model also considers potential SIF incidents to provide additional insights for future safety mitigation efforts. As SCE moves to the SCL model we will be reevaluating our cause evaluation and drivers for SIFs to align with the SCL model and will be leveraging a larger set of industry data.

In 2020, arc flash incidents resulted in several employee SIFs. As discussed above in Section I.B.1, SCE's Risk Based Safety Program is identifying and implementing certain mitigations to address these incidents going forward. Additionally, SCE implemented a series of corrective actions from cause evaluations including, implementing switching simulation software, providing error prevention training, providing a re-qualification program for operators, engineering and construction redesign, issuing updated Operating Bulletins and creating a Switching Center "Lead" position.

[79] *See* R.20-07-013, Southern California Edison Company's Additional Comments on Safety and Operational Metrics, and On Topics Raised in January 28, 2021 Workshop, March 1st, pp. 7 – 9.

2. Metric Link to Compensation or Individual or Group Performance Goals

The Employee SIF metric is linked to executive compensation as described in Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [Yes]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [Yes]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [Yes]

3. Metric Specific Bias Controls Discussion

In addition to the earlier discussion provided in Section I.B, an SCE Incident Screener audits medical reports to properly identify Employee SIF in accordance with the Cal OSHA SIF definition.[80] As part of this process, Claims, Worker Compensation, Supervisor, and Safety team member review SIF incidents and is overseen by Edison Safety Management. The Edison Safety Management Team discusses each Employee SIF incident at monthly Executive Safety Meetings assessing ways to minimize risk, prevent potential recurrence of serious injuries or fatalities, and validate accurate reporting of the incidents.

F. Metric 15: Employee Days Away, Restricted and Transfer (DART) Rate

***Table II*-17**
Employee DART Rate

Metric Name	Risks	Category	Units	Metric Description
15. Employee Days Away, Restricted and Transfer (DART) Rate	Employee Safety	Injuries	DART Cases times 200,000 divided by employee hours worked	DART Rate is calculated based on number of OSHA- recordable injuries resulting in Days Away from work and/or Days on Restricted Duty or Job Transfer, and hours worked

1. Metric Data and Discussion

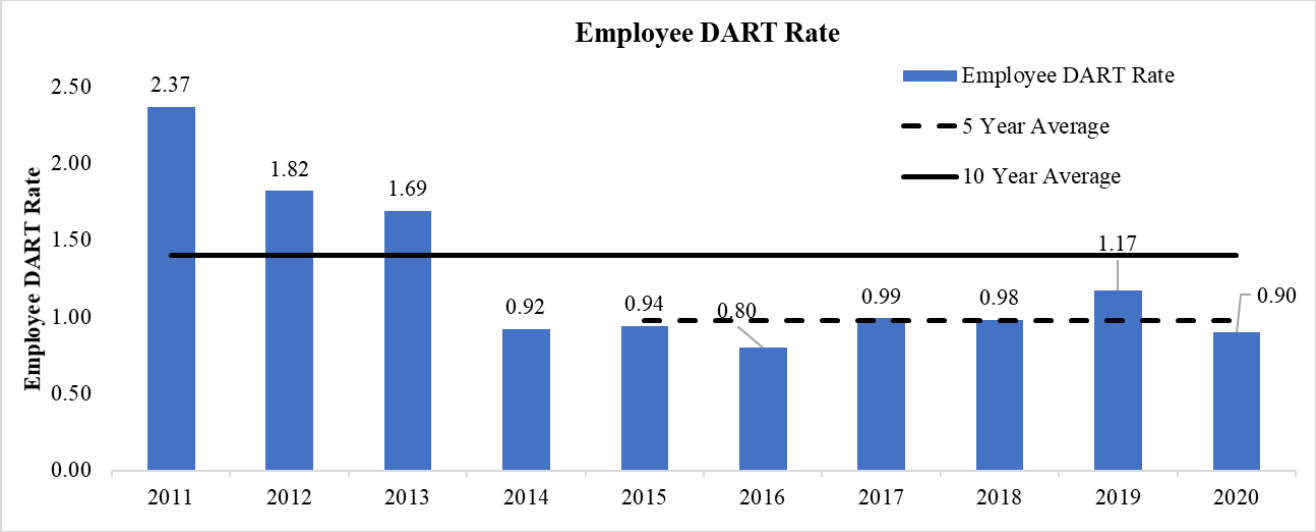
The annual data for Employee DART Rate is presented below in Figure II-7.[81] Employee DART rate is a metric SCE has tracked over the 10-year period and continues to be used as a

[80] While the Cal OSHA definition for Employee SIF is not the same as the definition adopted in SMAP for this metric, the data provided here correlates to the SMAP criteria.

[81] SCE provides the monthly historical data in Attachment A and in the Excel file served concurrently with this report.

metric for corporate goals. Employee DART Rates significantly decreased starting in 2014 due in large part to various safety programs and culture initiatives implemented at SCE. Please see Sections I.B.1 of SCE's 2019 SPMR and above in Section II.E.1 for further detail. The Employee DART Rate increased in 2019 due to significant wildfire mitigation activities. The Employee DART rate in 2020 decreased below both the 5- and 10-year averages. The key risk drivers impacting employee safety as identified in SCE's 2018 RAMP are discussed above in Section II.F.1 along with a description of SCE's worker safety activities.

Figure II-7
Annual Employee DART Rate Metric Data



2. Metric Link to Compensation or Individual or Group Performance Goals

The Employee DART Rate metric is linked to executive compensation as described in Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [Yes]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [Yes]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [Yes]

3. Metric Specific Bias Controls Discussion

In addition to the discussion in Section I.B, SCE has an OSHA Recordkeeper assessing medical reports and identifying Employee DART Injuries which are then reviewed by Edison Safety Management.

G. Metric 18: Contractor OSHA Recordable Rate

***Table II*-18**
Contractor OSHA Recordable Rate

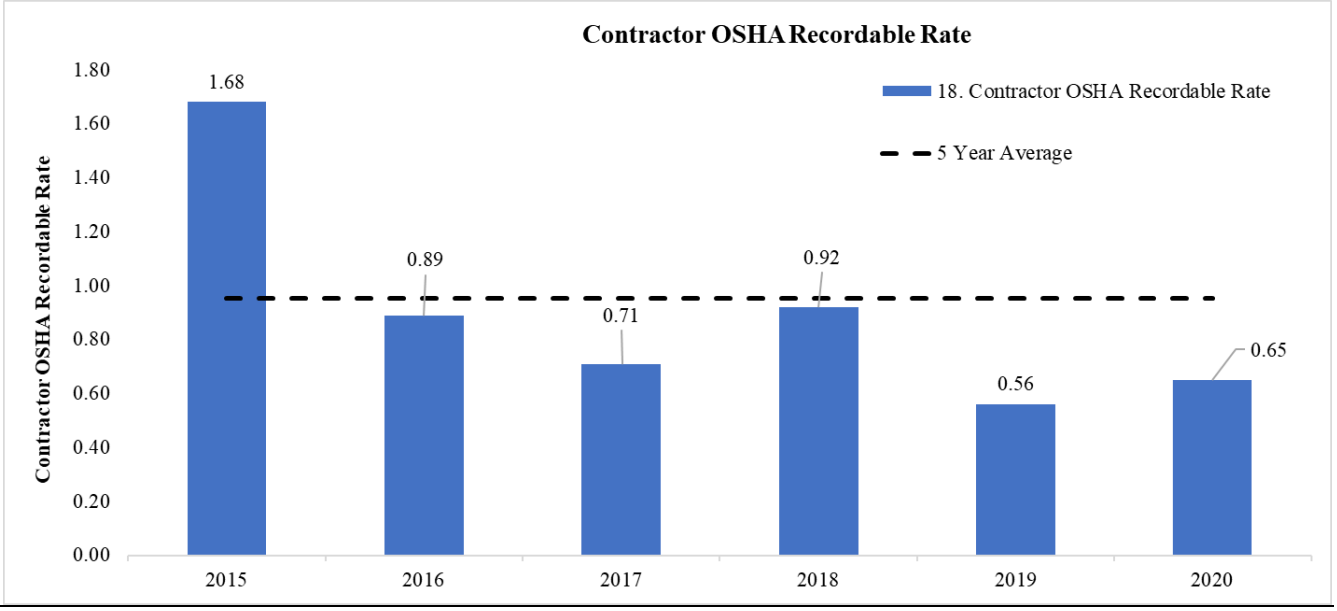
Metric Name	Risks	Category	Units	Metric Description
18. Contractor OSHA Recordable Rate	Contractor Safety	Injuries	OSHA recordable times 200,000 divided by contractor hours worked associated with work for the reporting	An OSHA recordable incident is an occupational (job- related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. OSHA recordable rate is calculated as OSHA recordable times 200,000 divided by contractor hours worked.

1. Metric Data and Discussion

The annual data for Contractor OSHA Recordable Rate is presented below in Figure II-8.[82] Additional discussion on contractor safety is included in Section I.B.1 and Section II.H.1. The key risk drivers impacting contractor safety as identified in SCE's 2018 RAMP are discussed above in Section II.F.1. The contractor OSHA recordable rate increased in 2020; however, the rate was 32% lower than the 5-year average. SCE's contractor safety initiatives are discussed in Section II.H below.

[82] SCE provides the monthly historical data in Attachment A and in the Excel file served concurrently with this report.

Figure II-8
Annual Contractor OSHA Recordable Rate Metric Data[83]



2. Metric Link to Compensation or Individual or Group Performance Goals

The Contractor OSHA Recordable Rate metric is not linked to executive compensation. For a further discussion on how SCE determined which metrics are linked to executive compensation please refer to Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [No]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [No]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [No]

3. Metric Specific Bias Controls Discussion

SCE verifies submitted Site Tracker data with Contractor Incident Reports to validate contractor safety performance data.

[83] The data provided for this metric includes Tier 1 contractors only.

H. Metric 20: Contractor Serious Injuries and Fatalities (SIF)

Table II-19
Contractor SIF

Metric Name	Risks	Category	Units	Metric Description
20. Contractor Serious Injuries and Fatalities	Contractor Safety	Injuries	#of work- related injuries or illnesses associated with work for the reporting utility	A work-related injury or illness that results in a fatality, inpatient hospitalization for more than 24 hours (other than for observation purposes), a loss of any member of the body, or any serious degree of permanent disfigurement.

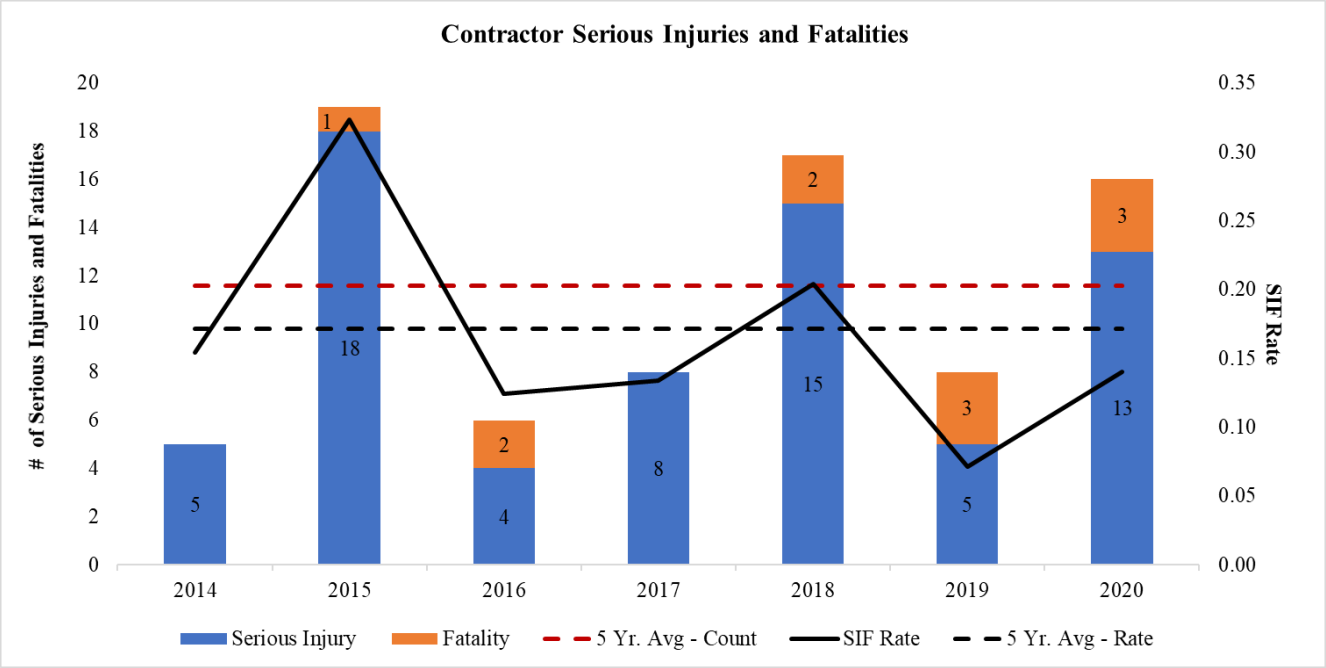
1. Metric Data and Discussion

The annual Contractor SIF Metric data is presented below in Figure II-8.[84] In its review, SPD observed that metrics such as SIFs would be more useful if they were expressed as rates rather than raw numbers.[85] Accordingly, SCE has included the Contractor SIF rate in Figure II-9. In 2020, SCE saw a notable increase in SIF counts (38 percent above historical averages). Factoring in total contractor hours, the SIF rate was 18% below historical averages as SCE has experienced an increase in contractor hours in recent years.

[84] SCE provides the monthly historical data in Attachment A and in the Excel file served concurrently with this report.

[85] Safety Policy Division Review of Southern California Edison's 2020 Safety Performance Metrics Submittal Pursuant to Decision 19-04-020, p. 20.

Figure II-9
Annual Contractor SIF Metric Data[86]



In the preceding years of 2015 and 2018 which had the highest SIFs, they comprised seven different hazards: Electrical Contact, Struck by, Chipping on Encasement, Slip and fall, Arc Flash, in the Bight, and Fall from Height. Each of these hazards are addressed as part of the SCE Work-Type Contractor Quality Assurance Review (CSQAR) program. SCE provides contractors with Critical Observable Actions (COAs) checklists to identify the common hazards present in specific work types (*e.g.* Vegetation Management, Overhead Distribution, etc.)[87] The COAs are also used by both SCE and outside field safety observers to validate that appropriate safety mitigations are in place based upon the type of work.

During 2019, there were three contractor fatalities. Two of the fatalities occurred in connection with a single vehicle collision. Subsequent thereto, the contracting entity revised their safety policies and SCE reduced the scope of services from that entity since the incident. The third fatality in 2019

[86] SCE notes that Cal OSHA has revised their definition for Contractor Serious Injuries and Fatalities. Changes to the Definitions of Serious Injury and Illness and Reporting to Cal/OSHA (AB 1804 and 1805). Accessible at: https://www.dir.ca.gov/dosh/Serious-injury-FAQ.html. SCE is presenting the data using the SMAP definition in Table II-15. SCE experienced 19 contractor serious injuries using the updated definition in 2020.

[87] The COA checklists are accessible via the following link: https://www.sce.com/partners/buying-selling/supply-chain-management (current as of March 23, 2021).

involved electrical contact by a Vegetation Management subcontractor. As a result of this incident, SCE has limited the scope of the subcontractor to ground work only and the prime contractor implemented multiple program improvements including: utilization of credential third-party training curriculum, real time training verification of credentials, and identification of conductor voltage prior to tree trimming. Additionally, SCE is implementing ISN badging and training tracking of Vegetation Management contract workers in 2021.

During 2020, there were three contractor fatalities. One contractor was struck by a vehicle while performing traffic management around a worksite. As a result of this incident, the contractor now outsources their traffic management support. Another contractor was killed while unloading materials from a trailer. As a result of this incident, SCE expanded the Safety Tier Definition requiring contractors to meet more rigorous safety qualifications and performance to be engaged for this type of unloading work. The final contractor fatality in 2020 resulted from electrical contact. The exact cause of this fatality remains under investigation as of the date of this submission.

Contractor serious injuries resulting from falls from height increased in 2020 (seven in 2020 versus none in 2019). The counts for other incidents types remained roughly the same. The fall incidents were spread across various work types including Vegetation Management, Distribution Underground and Overhead Distribution. For each incident, the contracting entity was required to provide SCE with their corrective action plans to eliminate future recurrence. SCE also revised the Hazard Assessment and Safety Plan document (HASP) (which must be approved by SCE before the contractor can begin any Safety Tier 1 work) to add dedicated sections for the most common fall hazards encountered ("Ladders, Platforms and Aerial Devices," "Working from Structures / Poles," and "Climbing Trees") and recommended mitigations. Contractors must adopt the recommended mitigation measures or provide their own equal or better mitigation measures which remain subject to SCE's review and approval.

In 2020, SCE gathered data from contractor Incident Reports and contractor submissions of hours worked in ISN's Site Tracker module to develop monthly contractor safety performance data. The regular flow of this data will enable Supply Management, Edison Safety, and SCE Operational Units to identify the highest areas of risk, both in terms of types of work and periodic work patterns. Edison Supply Management may use this data during monthly contractor performance meetings to monitor safety

performance and establish corrective action plans and mitigation activities, to address any identified deficiencies in contractor's safety performance.

For every Actual and Potential Life Threatening/Life Altering incident, SCE requires the contracting entity to provide an incident and cause evaluation identifying the apparent and contributing cause(s) of the incident and corrective actions plans. In 2021, SCE's Contractor Safety and the Management Review Committee (MRC) are looking at ways to enhance the MRC process and system to track corrective actions developed by contractors.

SCE's 2021 corporate goals includes contractor management success measure intended to assess the overall quality of contractors' work from both a safety and performance perspective. The metric gauges internal efforts to improve contractor safety oversight and accountability and increase collaborations with contractors and subcontractors on safety culture and risk management. Activities within this metric focus on strengthening contractor management controls (*e.g.*, clarifying triggers for corrective actions), supplementing quality control reviews within contractor work, and advancing training and certification verification at the worker level. These improvements seek to enhance worker safety and reduce serious injuries and fatalities involving contractors and subcontractors.

2. Metric Link to Compensation or Individual or Group Performance Goals

The Contractor SIF metric is linked to executive compensation as described in Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [Yes]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [Yes]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [Yes]

3. Metric Specific Bias Controls Discussion

SCE verifies submitted Site Tracker data with Contractor Incident Reports for improved quality control of contractor safety performance data.

I. Metric 21: Contractor Lost Work Day (WD) Rate

Table II-20
Contractor Lost Work Day (WD) Rate

Metric Name	Risks	Category	Units	Metric Description
21. Contractor Lost Work Day Case Rate	Contractor Safety	Injuries	# of Lost Workday (LWD) cases incurred for contractors per 200,000 hours worked associated with work for the reporting utility.	This measures the number of Lost Workday (LWD) cases incurred for contractors per 200,000 hours worked (for approximately every 100 contractors). A Lost Workday Case is a current year OSHA Recordable incident that has resulted in at least one lost workday. An OSHA Recordable incident is an occupational (job related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. The formula is: LWD Case Rate = Number of LWD Cases / productive hours worked x 200,000.

1. Metric Data and Discussion:

The annual and monthly data for Contractor Lost WD rate is presented below in Table II-21. SCE started tracking this metric in 2019. Given the relatively limited amount of data collected on this metric over two years, SCE is continuing to evaluate its efficacy and determine how it can use the data to propose mitigations to reduce contractor injuries. A more detailed discussion on SCE's contractor safety initiatives is included above in Section II.H.

Table II-21
Contractor Lost WD Rate – Historical Monthly Data

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2019	0.33	0.14	0.11	0.12	0.11	0.21	0.21	0.38	0.38	0.17	0.35	0.21	**0.23**
2020	0.22	0.35	0.23	0.62	0.42	0.00	0.55	0.33	0.00	0.25	0.09	0.51	**0.29**

2. Metric Link to Compensation or Individual or Group Performance Goals

The Contractor Lost WD Rate metric is not linked to executive compensation. For a further discussion on how SCE determined which metrics are linked to executive compensation please refer to Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [No]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [No]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [No]

3. Metric Specific Bias Controls Discussion

SCE verifies submitted Site Tracker data with Contractor Incident Reports for improved quality control of contractor safety performance data.

J. Metric 22: Public Serious Injuries and Fatalities

Table II-22
Public Serious Injuries and Fatalities[88]

Metric Name	Risks	Category	Units	Metric Description
22. Public Serious Injuries and Fatalities	Public Safety	Injuries	# of Serious Injuries and Fatalities	A fatality or personal injury requiring in-patient hospitalization involving utility facilities or equipment. Equipment includes utility vehicles used during the course of business.

1. Metric Data and Discussion:

Pursuant to Ordering Paragraph 3 of D.19-04-020, SCE provided SED staff with its data on Public Serious Injuries and Fatalities sixty days prior to the due date for this report. The agreed upon format for the submittal of this data designates the following categories and subcategories for SCE's reporting:

- Overhead electric contact
  - Contact with intact overhead conductors
  - Contact with energized fallen overhead conductors caused by falling trees/branches
  - Contact with energized fallen overhead conductors due to damage by pole failure
  - Contact with energized fallen overhead conductors due to conductor failure
  - Contact with energized fallen overhead conductors due to theft/vandalism
  - Contact with energized fallen overhead conductors due to other causes
- Underground electric contact

[88] SCE tracks Public Serious Injuries and Fatalities that meet the CPUC's Accident Reporting Requirements. This does not include public serious injuries and fatalities from vehicle incidents, not involving our electric facilities, where the vehicle was used during the course of business.

    - Excavation damage (i.e. dig-ins)
    - Theft/vandalism
    - Causes other than theft/vandalism.
- Equipment failure other than conductors or poles
- Vehicle-related
- Aircraft collision with utility infrastructure
- Wildfire
- Workplace or third party violence
- Other non-categorized causes.

The annual data for Public Serious Injuries and Fatalities is presented below in Figure II-10 with the 2020 data broken out by the designated categories and subcategories.[89] For some incidents, the actual severity of injury and/or SCE's involvement either remain unknown or are still under investigation. Therefore, the Public Serious Injuries and Fatalities data may change from what is presented in this report as subsequent determinations are made.

[89] For all incidents, the type of utility infrastructure involved was also noted (*e.g.* Generation, Distribution, Substation, and Transmission).

Figure II-10
Annual Public Serious Injury and Fatality Metric Data

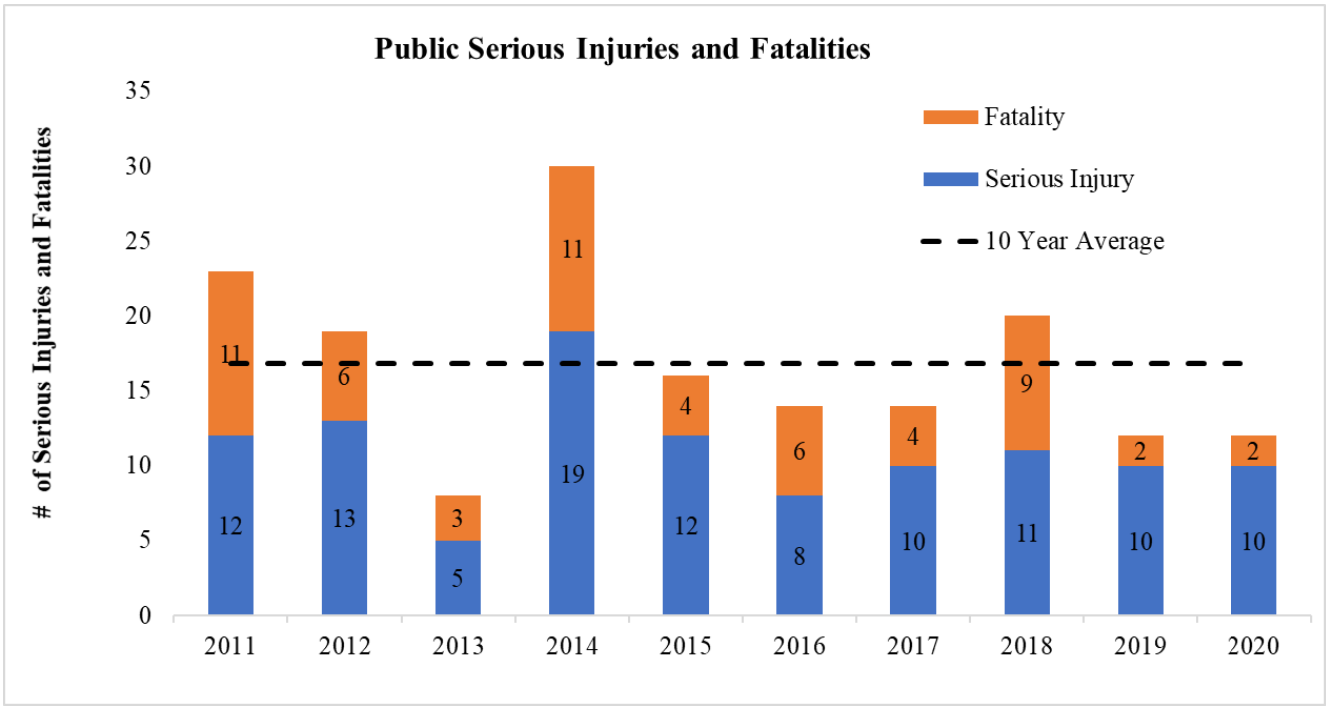


Table II-23
Public Serious Injury and Fatality – 2020 Data by Category

#	Injury Type	Incident Type	Sub-Category	Infrastructure Involved
1	Serious Injury	Underground Electrical Contact	Excavation damage ("dig-ins")	Distribution
2	Serious Injury	Underground Electrical Contact	Causes other than theft/vandalism.	Distribution
3	Serious Injury	Underground Electrical Contact	Theft/vandalism	Distribution
4	Fatality	Underground Electrical Contact	Theft/vandalism	Distribution
5	Serious Injury	Underground Electrical Contact	Theft/vandalism	Distribution
6	Serious Injury	Underground Electrical Contact	Excavation damage ("dig-ins")	Distribution
7	Serious Injury	Underground Electrical Contact	Theft/vandalism	Distribution
8	Serious Injury	Overhead Electrical Contact	Contact with intact overhead conductors	Distribution
9	Fatality	Other non-categorized causes		Transmission
10	Serious Injury	Underground Electrical Contact	Theft/vandalism	Distribution
11	Serious Injury	Overhead Electrical Contact	Contact with intact overhead conductors	Distribution
12	Serious Injury	Overhead Electrical Contact	Contact with intact overhead conductors	Distribution

Protecting the public is central to SCE's mission. In its review of SCE's 2019 SPMR, SPD indicated that "SCE does not state what it is doing to address the most frequent risk drivers and decrease its public serious injuries and fatalities."[90] The causes of public safety incidents vary and include vehicle incidents, SCE facility failures, outages, and trespassing and vandalism. SCE has identified several key public safety risks in Table II-24. SCE provides a sampling of our efforts addressing many of these key public safety risks below.

[90] Safety Policy Division Review of Southern California Edison's 2020 Safety Performance Metrics Submittal Pursuant to Decision 19-04-020, p. 16.

Table II-24
Key Public Safety Risks Identified by SCE

- Underground Equipment Failure
- Contact with Energized Equipment –Wire Down
- Contact with Energized Equipment –Overhead Intact Contact (*e.g.*, tree trimmer)
- Contact with Energized Equipment –Underground Intact Contact Below Grade (*e.g.*, dig-ins)
- Contact with Energized Equipment –Underground Intact Contact Above Grade (*e.g.*, riser, panel)
- Contact with Energized Equipment – Vandalism Theft & Idle Facilities (*e.g.*, Copper Theft)
- Planned/Unplanned Outages-Energy Dependent Customers
- Widespread Outage
- SCE Vehicle Operations (*e.g.*, 3rd Party Incidents)
- Workplace Issues (*e.g.*, Worksite Protection)
- 3rd Party Vehicle Hit SCE Equipment (*e.g.*, Car Hit Pole)
- Aircraft Collision with Overhead Lines
- Wildfire
- Hydro Asset Failure

SCE's public safety approach first focuses on grid resiliency through our design and construction standards, inspection and maintenance programs, and infrastructure replacement programs. Secondly, SCE has controls and mitigations in place such as PSPS and the monitoring of weather stations and HD cameras. Lastly, our outreach and education programs target our customers, at-risk workers, first responders, educators, and schoolchildren. We facilitate expanded claims investigations on public safety incidents in order to gather lessons learned to implement improvements and proactively mitigate similar incidents from recurring.

Maintenance and Inspection programs and Infrastructure Replacement programs mitigate the risk of system failure that may contribute to public safety incidents. These programs are managed and maintained by SCE's T&D OU. In 2020, SCE made several advancements to improve our management and understanding of underground equipment failure (UEF) and contact with energized equipment -wires down, both risks impacting public safety as shown in Table II-19. A more detailed discussion on our WD Risk Model is included in Section I.B.2.

SCE's outreach programs provide education and essential information to the public including billboards, radio spots, mailers, and television campaigns in multiple languages. External safety communication programs are developed and maintained by Corporate Communications and focus on topics such as the dangers of releasing metallic balloons, the importance of maintaining ten feet of clearance from our power lines, the Call Before you Dig "811" program, and preventing contact with downed wires. SCE

also provides educational seminars for communities, schools, and first responders on the dangers of electricity. SCE's Public Safety Organization partnered closely with Corporate Communications to contribute to the development of wire down communication campaign in 2019. SCE developed recent targeted marketing campaigns to reduce the risk of electrical contact with underground equipment to the public due to excavating (Dig-ins) in Section I.B.1.

As mentioned in the discussion on the Electric Emergency Response metric in Section II.C, CCC ENA New Hire Training is required for all employees hired into the CCC. Customer and Public Safety training is provided to the ENA's for situations when customers call to report hazardous conditions or safety concerns. The training material reviews pertinent information to provide the required public safety messaging to customers and goes through scenarios on how to issue different trouble orders. In 2020, SCE rolled out the Speech Analytics (transcribes speech to text) automated Quality Assurance (QA) score, which includes public safety call components to give SCE greater visibility to our public safety messaging performance. Corrective action is currently administered for missing the advisement of our public safety message. The lives of our customers and public are our number one priority and the public safety/trouble order guidelines address the handling all types of trouble orders. The following information is provided with a sense of urgency where public safety is a concern:

- Keep anyone or anything at least 100 feet away from a downed wire/hazard or anything in contact with the wire/hazard.
- Advise caller to call 911 so first responders can secure the perimeter to keep the public safe prior to the Edison crew's arrival.

The CCC conducts a sampling of call listening for our in-language ENA public safety calls to confirm they are also providing the above-mentioned public safety messages and accurately issuing trouble orders.

In 2019, SCE saw several cases of public serious injuries as a result of Spanish speaking individuals trimming trees around power lines who were unlicensed and uncertified for this type of work. To address this trend, SCE expanded its advertising and social media and video to include tree trimming tips and hazards of working near electrical lines in English and Spanish. SCE sent mailers or postcards to

property owners who may hire individuals to trim trees and informed them of the hazards associated with these activities. SCE also engaged with Culver Co. to expand its targeted mailing lists to trade groups. SCE re-established a partnership with the Hispanic Arborist Association to help educate tree trimmers on the risks associated with hiring uncertified vegetation workers. SCE continued these efforts in 2020 with its expanded advertising and social media and provided safety messaging at Lowes Hardware stores and the Lamb Canyon landfill. SCE continues to monitor for these types of incidents and, in 2020, there were no public serious injuries or fatalities from tree-trimming activities.

In 2020, SCE saw several instances of public serious injuries as a result of theft or vandalism as shown in Table II-23. SCE does currently have practices in place such as fixed and mobile surveillance cameras, intrusion sensing technology, perimeter lighting upgrades and high security, anti-cut/anti-climb fencing, walls, and gates. While these types of incidents are difficult to prevent, SCE is looking into additional processes that would reduce the hazards including revising the Distribution Design process to address facilities vulnerable to vandalism.

The above discussion is not an exhaustive list of all the work SCE does to reduce the public safety risk. We will continue to provide updates on our activities and initiatives to reduce the public safety risk in future SPMR, WMP, RAMP and General Rate Case (GRC) submissions.

2. Metric Link to Compensation or Individual or Group Performance Goals

The Public Serious Injury and Fatality metric is linked to executive compensation as described in Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [Yes]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [Yes]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [Yes]

3. Metric Specific Bias Controls Discussion

As stated in Section I.B Description of Executive Compensation Links and Bias Controls, Public SIF is part of SCE's foundational corporate goals and the subject of the Internal Audit process.

In addition, SCE's claims department continues to investigate and may reclassify certain Public SIF incidents when the incident meets the reportable definition as additional information is gathered.

K. Metric 23: Helicopter / Flight Accident or Incident

Table II-25
Helicopter / Flight Accident or Incident

Metric Name	Risks	Category	Units	Metric Description
23. Helicopter / Flight Accident or Incident	Aviation Safety Helicopter Operations Public Safety Worker Safety Employee Safety	Vehicle	# of accidents or incidents (as defined in 49 CFR Section 830.5 "Immediate Notification") per 100,000 flight hours	Defined by Federal Aviation Regulations (FARs), reportable to FAA per 49-CFR-830.

1. Metric Data and Discussion:

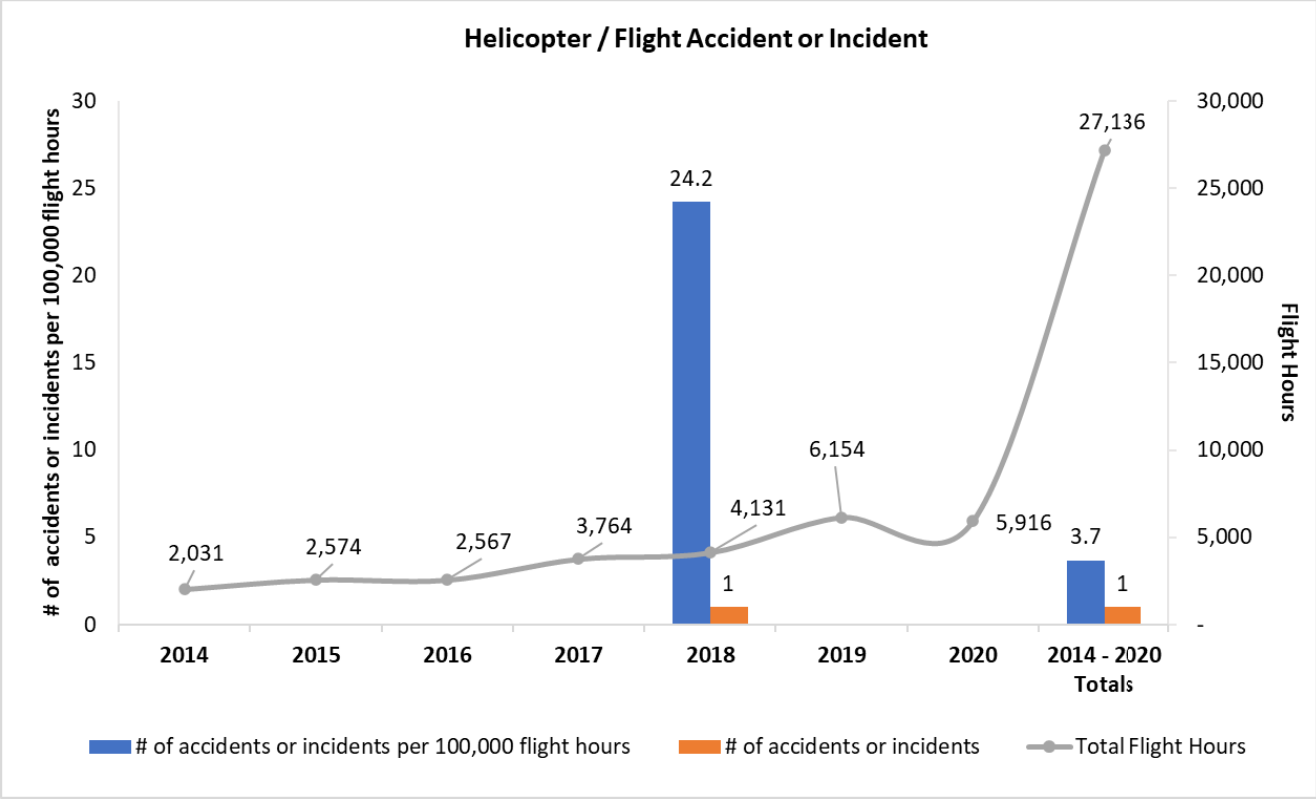
The annual data for Helicopter / Flight Accident or Incident is presented below in Figure II-11 and Table II-26, respectively. In June 2018, SCE had one contractor incident/accident as shown in Figure I-1.[91] SCE's actions supporting aviation safety with our employees and contractors and the general public include:

- SCE's Use of Company Owned, Contract and Chartered Aircraft Policy serves as an administrative control for the use of aviation assets.
- All contractors, including aviation providers, must comply with the Contractor Safety Policy (ISN) and are required to attend a contractor Safety Forum.
- All Aviation Service Providers are required to pass a technical qualification as required by SCE Air Operations policy. They are approved by work method based on their ability and whether they have obtained certificates to perform the work in compliance with Federal Aviation Administration (FAA) regulations.

[91] There were a total of 405.4 flight hours for SCE and contractors during that month which results in a monthly Helicopter / Flight Accident or Incident metric value of 247 using the definition outlined in Table II-26. SCE has provided the same calculation for all of 2018 which results in an annual value of 24.71. Figure II-11 below also shows the total flight hours experienced from 2014 – 2020 and the corresponding Helicopter / Flight Accident or Incident rate resulting in a value of 3.7.

- SCE performs observations of contract helicopter vendors during missions so that it can provide safety behavior feedback to the contractor.
- Air Operations conducts an annual educational outreach program open to all pilots on how to survive in the wire environment. This program is open to all general aviation pilots including first responders

Figure II-11
Summary of Annual Metric Data[92]



[92] This historical data does not include all contractor helicopter flight hours executed on Major Projects or Enhanced Overhead Inspection work.

Table II-26
Annual Historical Data for Helicopter / Flight Accident or Incident Metric

Year	# of accidents or incidents	Total Flight Hours	# of accidents or incidents per 100,000 flight hours
2014	0	2,031	-
2015	0	2,574	-
2016	0	2,567	-
2017	0	3,764	-
2018	1	4,131	24.2
2019	0	6,154	-
2020	0	5,916	-
2014 - 2020 Totals	**1**	**27,136**	**3.7**

2. Metric Link to Compensation or Individual or Group Performance Goals

The Helicopter / Flight Accident or Incident metric is not linked to executive compensation. For a further discussion on how SCE determined which metrics are linked to executive compensation please refer to Section I.B Description of Executive Compensation Links and Bias Controls.

- **Is Metric Used for the Purposes of Determining Executive (Director Level or Higher) Compensation Levels and/or Incentives?** – [No]
- **Is Metric Linked to the Determination of Individual or Group Performance Goals?**– [No]
- **Is Metric Linked to Executive (Director Level or Higher) Positions?**– [No]

3. Metric Specific Bias Controls Discussion

SCE uses a common industry device, Hobbs meter, to validate accurate measurement of total flight hours for SCE and contractors. In addition, SCE internally reviews and verifies that helicopter incidents or accidents are reported to the FAA in accordance with FAA regulations.

Attachment A

SCE 2020 Safety Performance Metrics – Historical Data

Southern California Edison Safety Performance Metrics

Metric Name	Risks	Category	Units	Metric Description
1. T&D Overhead Wires Down	Wildfire Transmission Overhead Conductor Distribution Overhead Conductor Primary	Electric	Number of Wire Down Events	Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; excludes down secondary distribution wires and "Major Event Days" (typically due to severe storm events) as defined by the IEEE.
2. T&D Overhead Wires Down - Major Event Days	Wildfire Transmission Overhead Conductor Distribution Overhead Conductor Primary	Electric	Number of Wire Down Events	Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; includes down secondary distribution wires. Includes "Major Event Days" (typically due to severe storm events) as defined by the IEEE.
3. Electric Emergency Response	Wildfire Overhead Conductor Public Safety Worker Safety	Electric	% of time response is within 60 mins	The percent of time utility personnel respond (are on-site) within one hour after receiving a 911 (electric related) call, with on-site defined as arriving at the premises to which the 911 call relates.
4. Fire Ignitions	Overhead Conductor Wildfire Public Safety Worker Safety Catastrophic Event Preparedness	Electric	# of Ignitions	The number of powerline-involved fire incidents annually reportable to the CPUC per Decision 14-02-015. A reportable fire incident includes all of the following: 1) Ignition is associated with a utility's powerlines and 2) something other than the utility's facilities burned and 3) the resulting fire traveled more than one meter from the ignition point.
14. Employee Serious Injuries and Fatalities	Employee Safety	Injuries	Number of Serious Injuries and Fatalities	A work-related injury or illness that results in a fatality, inpatient hospitalization for more than 24 hours (other than for observation purposes), a loss of any member of the body, or any serious degree of permanent disfigurement.
15. Employee Days Away, Restricted and Transfer (DART) Rate	Employee Safety	Injuries	DART Cases times 200,000 divided by employee hours worked	DART Rate is calculated based on number of OSHA- recordable injuries resulting in Days Away from work and/or Days on Restricted Duty or Job Transfer, and hours worked
18. Contractor OSHA Recordable Rate	Contractor Safety	Injuries	OSHA recordable times 200,000 divided by contractor hours worked associated with work for the reporting utility.	An OSHA recordable incident is an occupational (job- related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. OSHA recordable rate is calculated as OSHA recordable times 200,000 divided by contractor hours worked.
20. Contractor Serious Injuries and Fatalities	Contractor Safety	Injuries	#of work- related injuries or illnesses associated with work for the reporting utility	A work-related injury or illness that results in a fatality, inpatient hospitalization for more than 24 hours (other than for observation purposes), a loss of any member of the body, or any serious degree of permanent disfigurement.
21. Contractor Lost Work Day Case Rate	Contractor Safety	Injuries	# of Lost Workday (LWD) cases incurred for contractors per 200,000 hours worked associated with work for the reporting utility.	This measures the number of Lost Workday (LWD) cases incurred for contractors per 200,000 hours worked (for approximately every 100 contractors). A Lost Workday Case is a current year OSHA Recordable incident that has resulted in at least one lost workday. An OSHA Recordable incident is an occupational (job related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. The formula is: LWD Case Rate = Number of LWD Cases / productive hours worked x 200,000.
22. Public Serious Injuries and Fatalities	Public Safety	Injuries	# of Serious Injuries and Fatalities	A fatality or personal injury requiring in-patient hospitalization involving utility facilities or equipment. Equipment includes utility vehicles used during the course of business.
23. Helicopter / Flight Accident or Incident	Aviation Safety Helicopter Operations Public Safety Worker Safety Employee Safety	Vehicle	# of accidents or incidents (as defined in 49 CFR Section 830.5 "Immediate Notification") per 100,000 flight hours	Defined by Federal Aviation Regulations (FARs), reportable to FAA per 49-CFR-830.

1) SCE's Approved Safety Performance Metrics (Version 1.0) from D19.04.020

Southern California Edison Safety Performance Metrics - Monthly Data

Date	1. T&D Overhead Wires Down	SCE Metric 1a	2. T&D Overhead Wires Down - Major Event Days	SCE Metric 2a	3. Electric Emergency Response	4. Fire Ignitions	14. Employee Serious Injuries and Fatalities	15. Employee Days Away, Restricted and Transfer (DART) Rate
Dec-20	57	115	180	122	86%	8	0	0.93
Nov-20	99	103	204	200	77%	12	0	0.40
Oct-20	58	111	209	156	87%	12	1	0.87
Sep-20	57	137	197	117	89%	8	2	1.28
Aug-20	104	112	191	183	88%	20	0	1.21
Jul-20	78	78	135	135	89%	16	0	0.93
Jun-20	119	119	207	207	87%	41	1	0.25
May-20	92	92	177	177	87%	12	0	0.78
Apr-20	82	82	152	152	89%	4	0	0.49
Mar-20	96	96	139	139	88%	8	1	1.28
Feb-20	88	88	148	148	83%	4	0	0.87
Jan-20	65	65	105	105	86%	4	0	1.55
Dec-19	125	172	222	175	83%	1	0	0.51
Nov-19	73	108	168	133	82%	9	0	0.94
Oct-19	40	87	125	78	90%	7	0	0.98
Sep-19	74	77	123	120	84%	20	0	1.32
Aug-19	49	53	88	84	86%	20	2	1.23
Jul-19	84	84	120	120	91%	15	1	1.37
Jun-19	77	77	105	105	88%	23	0	0.87
May-19	81	81	112	112	88%	7	0	1.89
Apr-19	67	83	119	103	88%	15	0	0.73
Mar-19	73	73	78	78	87%	5	1	1.77
Feb-19	79	136	149	91	84%	1	0	1.49
Jan-19	110	110	115	115	85%	1	0	0.82
Dec-18	80	80	88	88	86%	5	0	1.10
Nov-18	46	86	93	53	84%	6	0	0.61
Oct-18	53	108	113	58	86%	16	0	1.65
Sep-18	72	72	73	73	88%	6	0	1.25
Aug-18	71	71	75	75	89%	13	1	1.22
Jul-18	52	60	68	60	88%	11	1	0.88
Jun-18	112	112	136	136	91%	19	1	0.58
May-18	71	71	88	88	91%	8	1	1.30
Apr-18	97	97	130	130	90%	14	0	0.59
Mar-18	99	99	120	120	91%	2	1	0.65
Feb-18	91	91	108	108	90%	6	0	1.06
Jan-18	67	100	124	91	91%	4	0	0.77
Dec-17	72	122	140	90	88%	3	0	0.32
Nov-17	66	66	72	72	88%	3	0	0.43
Oct-17	74	74	103	103	87%	6	1	0.91
Sep-17	112	112	153	153	85%	7	1	0.79
Aug-17	86	109	146	123	87%	13	0	1.78
Jul-17	90	90	125	125	87%	15	0	1.16
Jun-17	83	83	110	110	85%	21	1	1.33
May-17	87	87	105	105	81%	17	1	1.23
Apr-17	84	84	121	121	76%	9	0	0.83
Mar-17	113	113	151	151	83%	6	2	0.99
Feb-17	85	147	172	110	72%	1	0	0.84
Jan-17	119	181	241	179	76%	4	1	1.10
Dec-16	125	134	190	181		6	0	0.66
Nov-16	70	70	117	117		5	0	0.66
Oct-16	68	120	167	115		11	0	1.26
Sep-16	100	100	156	156		9	2	0.88
Aug-16	63	63	105	105		4	0	1.33
Jul-16	64	64	116	116		6	0	0.52
Jun-16	80	98	138	120		16	1	0.65
May-16	88	88	123	123		8	0	0.68
Apr-16	125	125	205	205		14	1	0.48
Mar-16	109	109	157	157		3	0	0.81
Feb-16	85	85	163	163		10	1	0.89
Jan-16	93	200	228	121		4	2	0.71
Dec-15	95	124	164	135		2	1	0.60
Nov-15	78	78	126	126		8	0	0.11
Oct-15	79	96	139	122		7	0	0.81
Sep-15	77	102	154	129		8	0	1.19
Aug-15	67	67	133	133		7	1	0.92
Jul-15	103	120	152	135		11	0	1.07
Jun-15	81	81	120	120		19	0	0.35
May-15	74	74	101	101		17	2	0.85

Southern California Edison Safety Performance Metrics - Monthly Data

Date	1. T&D Overhead Wires Down	SCE Metric 1a	2. T&D Overhead Wires Down - Major Event Days	SCE Metric 2a	3. Electric Emergency Response	4. Fire Ignitions	14. Employee Serious Injuries and Fatalities	15. Employee Days Away, Restricted and Transfer (DART) Rate
Apr-15	80	80	109	109		20	1	1.14
Mar-15	96	96	125	125		4	1	1.46
Feb-15	55	55	77	77		2	0	1.16
Jan-15	88	88	132	132		2	1	1.40
Dec-14	119	194	241	166		6	0	0.36
Nov-14	63	63	100	100		6	1	0.89
Oct-14	71	71	101	101		3	0	0.84
Sep-14	67	76	126	117		5	0	0.26
Aug-14	91	91	123	123		6	0	0.90
Jul-14	64	64	100	100		6	0	0.88
Jun-14	85	85	118	118		6	0	1.18
May-14	81	95	131	117		1	2	1.17
Apr-14							0	0.78
Mar-14							1	1.42
Feb-14							1	1.36
Jan-14							0	1.06
Dec-13							0	1.07
Nov-13							0	1.95
Oct-13							1	2.08
Sep-13							0	1.45
Aug-13							0	1.72
Jul-13							0	1.16
Jun-13							0	1.59
May-13							0	1.67
Apr-13							1	2.02
Mar-13							0	1.35
Feb-13							0	2.36
Jan-13							0	1.79
Dec-12							0	1.64
Nov-12							1	1.31
Oct-12							0	1.51
Sep-12							1	1.77
Aug-12							1	1.81
Jul-12							0	2.10
Jun-12							0	1.60
May-12							0	2.60
Apr-12							0	2.02
Mar-12							0	1.54
Feb-12							0	1.77
Jan-12							0	2.09
Dec-11							3	2.40
Nov-11							3	1.88
Oct-11							0	2.00
Sep-11							0	3.03
Aug-11							0	1.66
Jul-11							1	2.51
Jun-11							1	2.94
May-11							0	3.14
Apr-11							0	1.98
Mar-11							0	1.96
Feb-11							1	2.73
Jan-11							1	2.26

Southern California Edison Safety Performance Metrics - Monthly Data

Date	18. Contractor OSHA Recordable Rate	20. Contractor Serious Injuries and Fatalities	21. Contractor Lost Work Day Case Rate	22. Public Serious Injuries and Fatalities	23. Helicopter / Flight Accident or Incident		
					Total Incident Count	*Total Flight Hours*	*Total Incident Rate*
Dec-20	0.72	1	0.51	1	0	646.8	0
Nov-20	0.55	0	0.09	0	0	1077.2	0
Oct-20	0.66	1	0.25	0	0	930.7	0
Sep-20	0.21	0	0.00	1	0	287.5	0
Aug-20	0.87	2	0.33	1	0	177.1	0
Jul-20	0.98	4	0.55	2	0	345.2	0
Jun-20	0.53	0	0.00	0	0	482.8	0
May-20	0.63	1	0.42	2	0	316.4	0
Apr-20	1.23	3	0.62	2	0	375.8	0
Mar-20	0.45	1	0.23	1	0	424.6	0
Feb-20	0.69	2	0.35	0	0	517	0
Jan-20	0.33	1	0.22	2	0	334.9	0
Dec-19	0.52	0	0.21	0	0	547.1	0
Nov-19	0.44	0	0.35	1	0	536.6	0
Oct-19	0.43	1	0.17	3	0	749.3	0
Sep-19	0.85	0	0.38	0	0	615.5	0
Aug-19	0.76	2	0.38	2	0	318.8	0
Jul-19	0.43	2	0.21	2	0	763	0
Jun-19	0.84	2	0.21	2	0	757	0
May-19	0.45	1	0.11	0	0	637	0
Apr-19	0.47	0	0.12	0	0	397.1	0
Mar-19	0.45	0	0.11	1	0	424.4	0
Feb-19	0.56	0	0.14	0	0	205.4	0
Jan-19	0.50	0	0.33	1	0	202.7	0
Dec-18	0.71	2		0	0	207.3	0
Nov-18	0.74	1		4	0	325.5	0
Oct-18	0.13	1		2	0	518.9	0
Sep-18	0.51	1		2	0	526.4	0
Aug-18	1.44	0		0	0	565.3	0
Jul-18	1.62	1		1	0	548.3	0
Jun-18	1.70	2		3	1	405.4	246.67
May-18	1.04	5		1	0	186	0
Apr-18	0.70	0		1	0	199	0
Mar-18	1.50	3		2	0	172.8	0
Feb-18	0.71	0		4	0	151.8	0
Jan-18	0.35	1		0	0	324.1	0
Dec-17	0.54	0		3	0	232.6	0
Nov-17	0.73	0		0	0	195.3	0
Oct-17	0.96	1		0	0	270.4	0
Sep-17	0.41	1		2	0	577.5	0
Aug-17	0.34	1		1	0	233.3	0
Jul-17	0.77	0		0	0	320.3	0
Jun-17	0.23	1		2	0	614.8	0
May-17	0.78	1		1	0	439.6	0
Apr-17	1.24	2		2	0	287.4	0
Mar-17	1.51	0		1	0	253.6	0
Feb-17	0.00	1		2	0	140.1	0
Jan-17	1.36	0		0	0	198.6	0
Dec-16	2.12	0		1	0	128.3	0
Nov-16	0.70	0		1	0	266.6	0
Oct-16	1.13	0		2	0	220.8	0
Sep-16	1.35	0		1	0	460.1	0
Aug-16	0.54	0		0	0	262.8	0
Jul-16	1.34	0		0	0	216.1	0
Jun-16	1.25	2		0	0	180.5	0
May-16	1.15	3		4	0	158.7	0
Apr-16	0.91	0		1	0	156.5	0
Mar-16	0.00	1		1	0	175.2	0
Feb-16	1.31	0		1	0	183.4	0
Jan-16	0.28	0		2	0	157.6	0
Dec-15	2.03	1		0	0	250.9	0

Southern California Edison Safety Performance Metrics - Monthly Data

Date	18. Contractor OSHA Recordable Rate	20. Contractor Serious Injuries and Fatalities	21. Contractor Lost Work Day Case Rate	22. Public Serious Injuries and Fatalities	23. Helicopter / Flight Accident or Incident		
					Total Incident Count	*Total Flight Hours*	*Total Incident Rate*
Nov-15	0.89	1		4	0	212.1	0
Oct-15	0.59	0		2	0	216.6	0
Sep-15	1.29	0		1	0	357.8	0
Aug-15	1.73	0		2	0	224.7	0
Jul-15	1.90	3		0	0	255.5	0
Jun-15	1.62	3		1	0	248.1	0
May-15	2.52	2		2	0	215.8	0
Apr-15	1.30	2		1	0	146.3	0
Mar-15	2.13	3		1	0	191.4	0
Feb-15	2.66	4		2	0	155.4	0
Jan-15	1.72	0		0	0	99.8	0
Dec-14		1		0	0	184.4	0
Nov-14		1		1	0	113.9	0
Oct-14		0		2	0	156.5	0
Sep-14		0		0	0	218.9	0
Aug-14		1		7	0	252.5	0
Jul-14		1		1	0	183.1	0
Jun-14		0		4	0	181.5	0
May-14		0		9	0	168.4	0
Apr-14		0		1	0	178.2	0
Mar-14		1		2	0	163.9	0
Feb-14		0		3	0	119.8	0
Jan-14		0		0	0	109.7	0
Dec-13				0	0	0	0
Nov-13				0			
Oct-13				2			
Sep-13				0			
Aug-13				1			
Jul-13				3			
Jun-13				0			
May-13				0			
Apr-13				0			
Mar-13				0			
Feb-13				0			
Jan-13				2			
Dec-12				2			
Nov-12				4			
Oct-12				0			
Sep-12				0			
Aug-12				2			
Jul-12				4			
Jun-12				2			
May-12				2			
Apr-12				1			
Mar-12				1			
Feb-12				0			
Jan-12				1			
Dec-11				3			
Nov-11				4			
Oct-11				0			
Sep-11				2			
Aug-11				1			
Jul-11				0			
Jun-11				0			
May-11				3			
Apr-11				3			
Mar-11				0			
Feb-11				1			
Jan-11				6			

Southern California Edison Safety Performance Metrics - Annual Data

Year	1. T&D Overhead Wires Down	SCE Metric 1a	2. T&D Overhead Wires Down - Major Event Days	SCE Metric 2a	3. Electric Emergency Response	4. Fire Ignitions	14. Employee Serious Injuries and Fatalities	15. Employee Days Away, Restricted and Transfer (DART) Rate	18. Contractor OSHA Recordable Rate	20. Contractor Serious Injuries and Fatalities	21. Contractor Lost Work Day Case Rate	22. Public Serious Injuries and Fatalities	23. Helicopter / Flight Accident or Incident
2020	995	1,198	2,044	1,841	84%	149	5	0.90	0.65	16	0.29	12	0
2019	932	1,141	1,524	1,314	85%	124	4	1.17	0.56	8	0.23	12	0
2018	911	1,047	1,216	1,080	86%	110	5	0.98	0.92	17		20	24.2
2017	1,071	1,268	1,639	1,442	83%	105	7	0.99	0.71	8		14	0
2016	1,070	1,256	1,865	1,679		96	7	0.8	0.89	6		14	0
2015	973	1,061	1,532	1,444		107	7	0.94	1.68	19		16	0
2014	641	739	1,040	942		39	5	0.92		5		30	0
2013							2	1.69				8	0
2012							3	1.82				19	0
2011							10	2.37				23	0

Percent Improvement/Decline in SCE's 2020 Metric Performance Compared to Historical Average*

Metric Name	2020 Performance	Historical Average	Percent Improvement/Decline in SCE's 2020 Metric Performance Compared to Historical Average	Average Notes
1. T&D Overhead Wires Down	995	991	-0.4%	5 year Average
2. T&D Overhead Wires Down - Major Event Days	2,044	1,555	-31.4%	5 year Average
3. Electric Emergency Response	84%	84%	-0.1%	4 Year Average
4. Fire Ignitions	149	108	-37.5%	5 year Average
14. Employee Serious Injuries and Fatalities	5	5.3	5.7%	10 Year Average
15. Employee Days Away, Restricted and Transfer (DART) Rate	0.90	1.40	35.8%	10 Year Average
18. Contractor OSHA Recordable Rate	0.65	0.95	31.7%	5 year Average
20. Contractor Serious Injuries and Fatalities	16	12	-37.9%	5 year Average
21. Contractor Lost Work Day Case Rate	0.29	-	-	N/A only two years of historical data
22. Public Serious Injuries and Fatalities	12	16.8	28.6%	10 Year Average
23. Helicopter / Flight Accident or Incident	0	1	100.0%	Average represents 1 incident in 2018

**For electric emergency response, where a higher value is better, positive values show a percent increase in the metric's performance in the table; for all other metrics where a lower value is better, (e.g., fire ignitions, wires down, SIF, etc.), positive values show a percent decrease in the metric's performance.*

#1 - T&D Overhead Wires Down

Metric Name	Risks	Category	Units	Metric Description
1. T&D Overhead Wires Down	Wildfire Transmission Overhead Conductor Distribution Overhead Conductor Primary	Electric	Number of Wire Down Events	Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; excludes down secondary distribution wires and "Major Event Days" (typically due to severe storm events) as defined by the IEEE.

Monthly Historical Data:

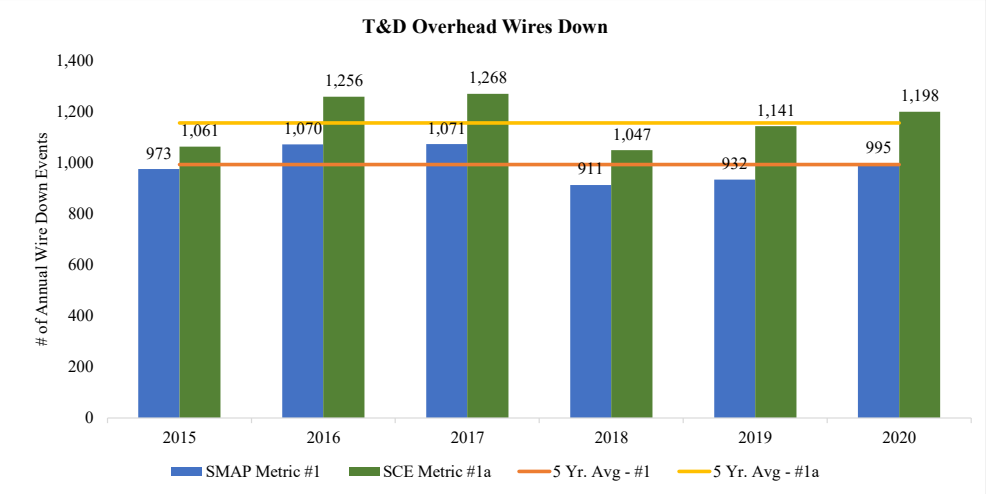
Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals	Monthly Average
2014	N/A	N/A	N/A	N/A	81	85	64	91	67	71	63	119	**641**	**80**
2015	88	55	96	80	74	81	103	67	77	79	78	95	**973**	**81**
2016	93	85	109	125	88	80	64	63	100	68	70	125	**1,070**	**89**
2017	119	85	113	84	87	83	90	86	112	74	66	72	**1,071**	**89**
2018	67	91	99	97	71	112	52	71	72	53	46	80	**911**	**76**
2019	110	79	73	67	81	77	84	49	74	40	73	125	**932**	**78**
2020	65	88	96	82	92	119	78	104	57	58	99	57	**995**	**83**
Average by Month	**90**	**81**	**98**	**89**	**82**	**91**	**76**	**76**	**80**	**63**	**71**	**96**	-	-

Annual Historical Data:

Year	SMAP Metric #1	SCE Metric #1a	5 Yr. Avg - #1	Yr. Avg - #1a
2014	641	739	991	1,155
2015	973	1,061	991	1,155
2016	1,070	1,256	991	1,155
2017	1,071	1,268	991	1,155
2018	911	1,047	991	1,155
2019	932	1,141	991	1,155
2020	995	1,198	991	1,155
5 Year Average	**991**	**1,155**		

"SCE Metric 1a," which differs from Safety Performance Metric 1 only in that SCE's metric includes MEDs

Annual Historical Chart



2 - T&D Overhead Wires Down - Major Event Days

Metric Name	Risks	Category	Units	Metric Description
2. T&D Overhead Wires Down - Major Event Days	Wildfire Transmission Overhead Conductor Distribution Overhead Conductor Primary	Electric	Number of Wire Down Events	Number of instances where an electric transmission or primary distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object; includes down secondary distribution wires. Includes "Major Event Days" (typically due to severe storm events) as defined by the IEEE.

Monthly Historical Data:

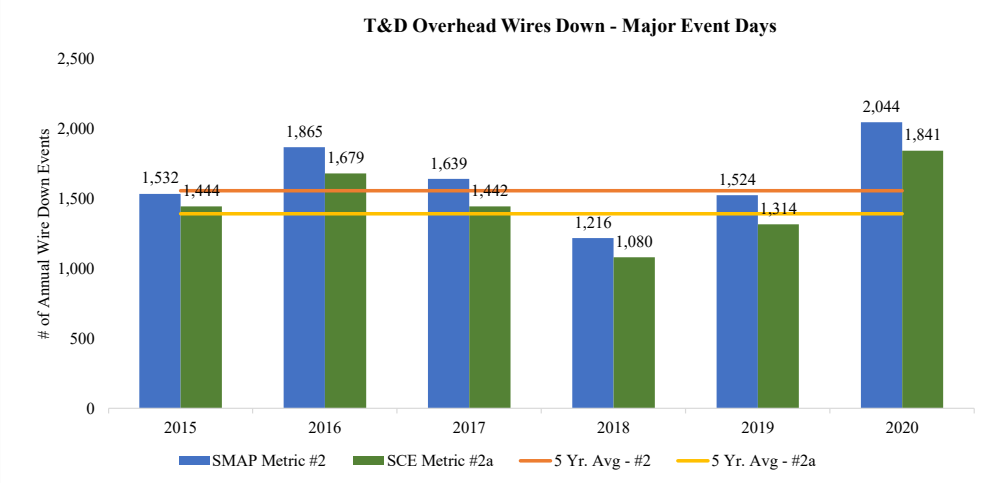
Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals	Monthly Average
2014	N/A	N/A	N/A	N/A	131	118	100	123	126	101	100	241	**1,040**	**130**
2015	132	77	125	109	101	120	152	133	154	139	126	164	**1,532**	**128**
2016	228	163	157	205	123	138	116	105	156	167	117	190	**1,865**	**155**
2017	241	172	151	121	105	110	125	146	153	103	72	140	**1,639**	**137**
2018	124	108	120	130	88	136	68	75	73	113	93	88	**1,216**	**101**
2019	115	149	78	119	112	105	120	88	123	125	168	222	**1,524**	**127**
2020	105	148	139	152	177	207	135	191	197	209	204	180	**2,044**	**170**
Average by Month	**158**	**136**	**128**	**139**	**120**	**133**	**117**	**123**	**140**	**137**	**126**	**175**	**1,551**	**135**

Annual Historical Data:

Year	SMAP Metric #2	SCE Metric #2a	5 Yr. Avg - #2	Yr. Avg - #2a
2014	1,040	942	1,555	1,392
2015	1,532	1,444	1,555	1,392
2016	1,865	1,679	1,555	1,392
2017	1,639	1,442	1,555	1,392
2018	1,216	1,080	1,555	1,392
2019	1,524	1,314	1,555	1,392
2020	2,044	1,841	1,555	1,392
5 Year Average	**1,555**	**1,392**		

SCE Metric 2a," which differs from Safety Performance Metric 2 only in that SCE's metric excludes MEDs

Annual Historical Chart



3 - Electric Emergency Response

Metric Name	Risks	Category	Units	Metric Description
3. Electric Emergency Response	Wildfire Overhead Conductor Public Safety Worker Safety	Electric	% of time response is within 60 mins	The percent of time utility personnel respond (are on-site) within one hour after receiving a 911 (electric related) call, with on-site defined as arriving at the premises to which the 911 call relates.

Monthly Historical Data - Excluding Major Event Days

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2017	76%	72%	83%	76%	81%	85%	87%	87%	85%	87%	88%	88%	83%
2018	91%	90%	91%	90%	91%	91%	88%	89%	88%	86%	84%	86%	89%
2019	85%	84%	87%	88%	88%	88%	91%	86%	84%	90%	82%	83%	86%
2020	86%	83%	88%	89%	87%	87%	89%	88%	89%	87%	77%	86%	86%
Average by Month	**84%**	**82%**	**87%**	**86%**	**87%**	**88%**	**89%**	**88%**	**87%**	**88%**	**83%**	**86%**	**86%**

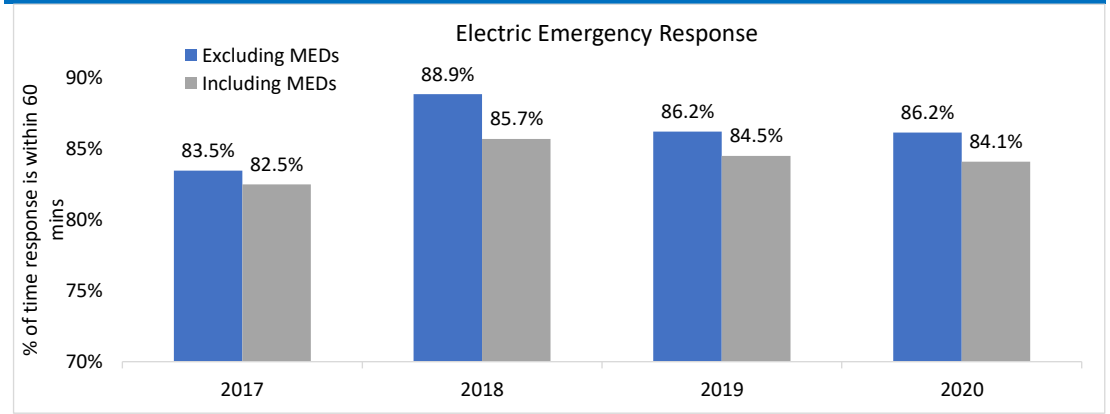
Monthly Historical Data - Including Major Event Days

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2017	72%	69%	83%	76%	81%	85%	87%	84%	85%	87%	88%	83%	83%
2018	82%	90%	91%	90%	91%	91%	87%	89%	88%	69%	83%	86%	86%
2019	85%	76%	87%	84%	88%	88%	91%	86%	84%	87%	79%	80%	85%
2020	86%	83%	88%	89%	87%	87%	89%	88%	80%	76%	77%	86%	84%
Average by Month	**81%**	**80%**	**87%**	**85%**	**87%**	**88%**	**88%**	**87%**	**84%**	**80%**	**82%**	**84%**	**84%**

Annual Historical Data:

Year	Excluding MEDs	Including MEDs
2017	83%	83%
2018	89%	86%
2019	86%	85%
2020	86%	84%
4 Year Averrage	**86%**	**84%**

Annual Historical Chart



#4 - Fire Ignitions

Metric Name	Risks	Category	Units	Metric Description
4. Fire Ignitions	Overhead Conductor Wildfire Public Safety Worker Safety Catastrophic Event Preparedness	Electric	# of Ignitions	The number of powerline-involved fire incidents annually reportable to the CPUC per Decision 14-02-015. A reportable fire incident includes all of the following: 1) Ignition is associated with a utility's powerlines and 2) something other than the utility's facilities burned and 3) the resulting fire traveled more than one meter from the ignition point.

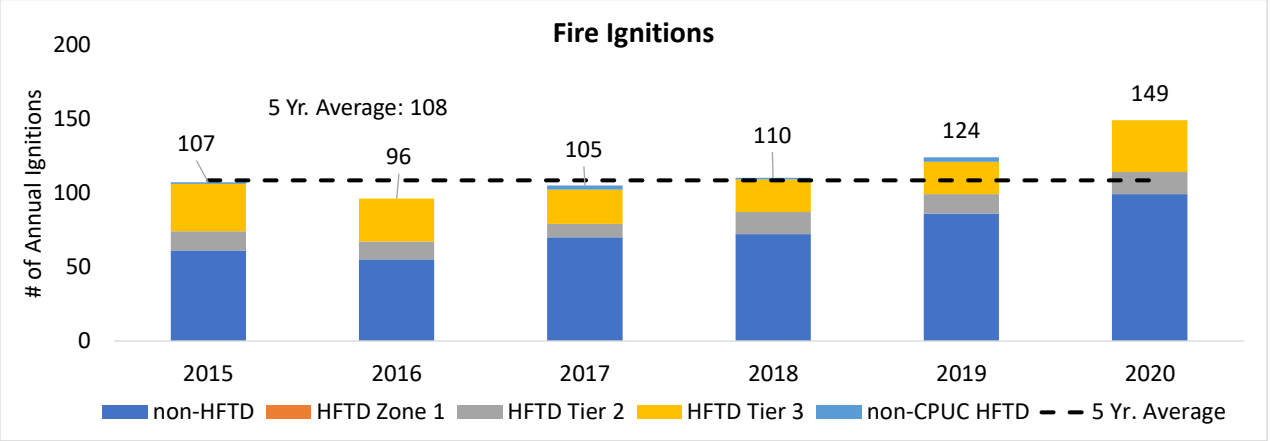
Monthly Historical Data:

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2014	N/A	N/A	N/A	N/A	1	6	6	6	5	3	6	6	**39**
2015	2	2	4	20	17	19	11	7	8	7	8	2	**107**
2016	4	10	3	14	8	16	6	4	9	11	5	6	**96**
2017	4	1	6	9	17	21	15	13	7	6	3	3	**105**
2018	4	6	2	14	8	19	11	13	6	16	6	5	**110**
2019	1	1	5	15	7	23	15	20	20	7	9	1	**124**
2020	4	4	8	4	12	41	16	20	8	12	12	8	**149**
Average by Month	**3**	**4**	**5**	**13**	**10**	**21**	**11**	**12**	**9**	**9**	**7**	**4**	-

Annual Historical Data:

Year	Value
2014	39
2015	107
2016	96
2017	105
2018	110
2019	124
2020	149
5 Year Average	**108**

Annual Historical Chart



#14 - Employee Serious Injuries and Fatalities

Metric Name	Risks	Category	Units	Metric Description
14. Employee Serious Injuries and Fatalities	Employee Safety	Injuries	Number of Serious Injuries and Fatalities	A work-related injury or illness that results in a fatality, inpatient hospitalization for more than 24 hours (other than for observation purposes), a loss of any member of the body, or any serious degree of permanent disfigurement.

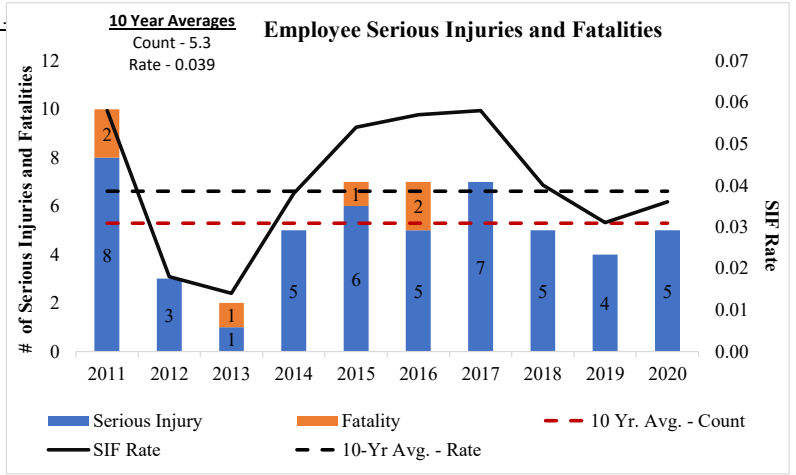
Monthly Historical Data:

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2011	1	1	0	0	0	1	1	0	0	0	3	3	**10**
2012	0	0	0	0	0	0	0	1	1	0	1	0	**3**
2013	0	0	0	1	0	0	0	0	0	1	0	0	**2**
2014	0	1	1	0	2	0	0	0	0	0	1	0	**5**
2015	1	0	1	1	2	0	0	1	0	0	0	1	**7**
2016	2	1	0	1	0	1	0	0	2	0	0	0	**7**
2017	1	0	2	0	1	1	0	0	1	1	0	0	**7**
2018	0	0	1	0	1	1	1	1	0	0	0	0	**5**
2019	0	0	1	0	0	0	1	2	0	0	0	0	**4**
2020	0	0	1	0	0	1	0	0	2	1	0	0	**5**
Average by Month	**0.5**	**0.3**	**0.7**	**0.3**	**0.6**	**0.5**	**0.3**	**0.5**	**0.6**	**0.3**	**0.5**	**0.4**	**5.5**

Annual Historical Data:

Year	Serious Injury	Fatality	Total	10 Yr Average - Count	SIF Rate	10 Yr Average - Rate
2010	3	0	3	5.3	0.018	0.039
2011	8	2	10	5.3	0.058	0.039
2012	3	0	3	5.3	0.018	0.039
2013	1	1	2	5.3	0.014	0.039
2014	5	0	5	5.3	0.038	0.039
2015	6	1	7	5.3	0.054	0.039
2016	5	2	7	5.3	0.057	0.039
2017	7	0	7	5.3	0.058	0.039
2018	5	0	5	5.3	0.040	0.039
2019	4	0	4	5.3	0.031	0.039
2020	5	0	5	5.3	0.036	0.039
10 Year Average	**4.7**	**0.6**	**5.3**		**0.0386**	

Annual Historical Chart



#15 - Employee Days Away, Restricted and Transfer (DART) Rate

Metric Name	Risks	Category	Units	Metric Description
15. Employee Days Away, Restricted and Transfer (DART) Rate	Employee Safety	Injuries	DART Cases times 200,000 divided by employee hours worked	DART Rate is calculated based on number of OSHA- recordable injuries resulting in Days Away from work and/or Days on Restricted Duty or Job Transfer, and hours worked

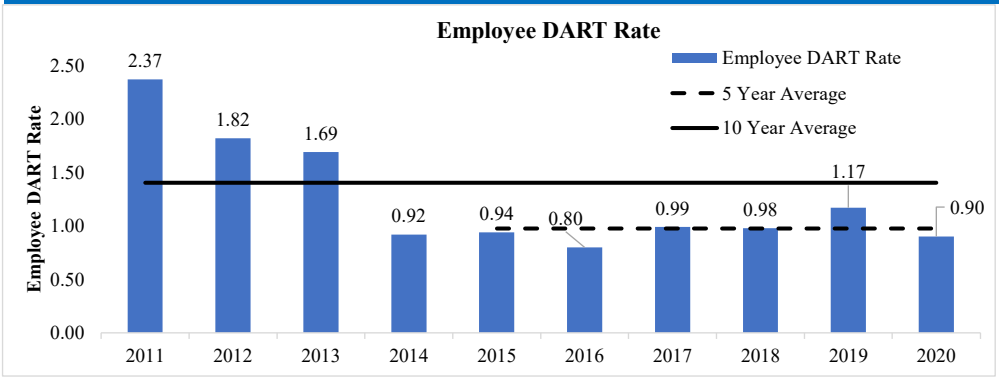
Monthly Historical Data:

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2011	2.26	2.73	1.96	1.98	3.14	2.94	2.51	1.66	3.03	2.00	1.88	2.40	**2.37**
2012	2.09	1.77	1.54	2.02	2.60	1.60	2.10	1.81	1.77	1.51	1.31	1.64	**1.82**
2013	1.79	2.36	1.35	2.02	1.67	1.59	1.16	1.72	1.45	2.08	1.95	1.07	**1.69**
2014	1.06	1.36	1.42	0.78	1.17	1.18	0.88	0.90	0.26	0.84	0.89	0.36	**0.92**
2015	1.40	1.16	1.46	1.14	0.85	0.35	1.07	0.92	1.19	0.81	0.11	0.60	**0.94**
2016	0.71	0.89	0.81	0.48	0.68	0.65	0.52	1.33	0.88	1.26	0.66	0.66	**0.80**
2017	1.10	0.84	0.99	0.83	1.23	1.33	1.16	1.78	0.79	0.91	0.43	0.32	**0.99**
2018	0.77	1.06	0.65	0.59	1.30	0.58	0.88	1.22	1.25	1.65	0.61	1.10	**0.98**
2019	0.82	1.49	1.77	0.73	1.89	0.87	1.37	1.23	1.32	0.98	0.94	0.51	**1.17**
2020	1.55	0.87	1.28	0.49	0.78	0.25	0.93	1.21	1.28	0.87	0.40	0.93	**0.90**
Average by Month	**1.36**	**1.45**	**1.32**	**1.11**	**1.53**	**1.13**	**1.26**	**1.38**	**1.32**	**1.29**	**0.92**	**0.96**	**1.26**

Annual Historical Data:

Year	Value	5 Year Average	10 Year Average
2011	2.34		
2011	2.37		1.40
2012	1.82		1.40
2013	1.69		1.40
2014	0.92		1.40
2015	0.94	0.98	1.40
2016	0.80	0.98	1.40
2017	0.99	0.98	1.40
2018	0.98	0.98	1.40
2019	1.17	0.98	1.40
2020	0.90	0.98	1.40
5 Year Average	**0.98**		
10 Year Average	**1.40**		

Annual Historical Chart



#18 - Contractor OSHA Recordable Rate

Metric Name	Risks	Category	Units	Metric Description
18. Contractor OSHA Recordable Rate	Contractor Safety	Injuries	OSHA recordable times 200,000 divided by contractor hours worked associated with work for the reporting utility.	An OSHA recordable incident is an occupational (job- related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. OSHA recordable rate is calculated as OSHA recordable times 200,000

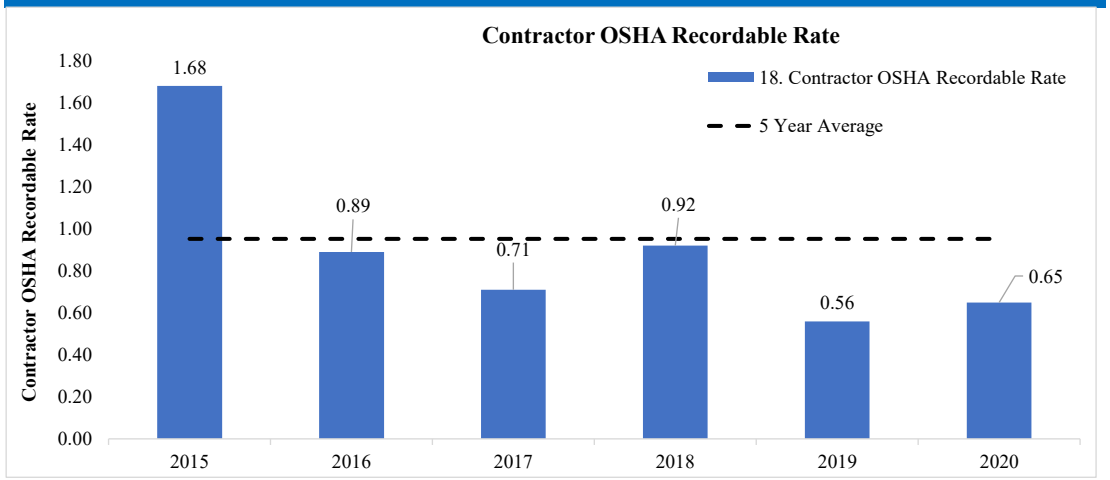
Monthly Historical Data:

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2015	1.72	2.66	2.13	1.30	2.52	1.62	1.90	1.73	1.29	0.59	0.89	2.03	**1.68**
2016	0.28	1.31	0.00	0.91	1.15	1.25	1.34	0.54	1.35	1.13	0.70	2.12	**0.89**
2017	1.36	0.00	1.51	1.24	0.78	0.23	0.77	0.34	0.41	0.96	0.73	0.54	**0.71**
2018	0.35	0.71	1.50	0.70	1.04	1.70	1.62	1.44	0.51	0.13	0.74	0.71	**0.92**
2019	0.50	0.56	0.45	0.47	0.45	0.84	0.43	0.76	0.85	0.43	0.44	0.52	**0.56**
2020	0.22	0.35	0.23	0.62	0.42	0.00	0.55	0.33	0.00	0.25	0.09	0.51	**0.65**
Average by Month	**0.74**	**0.93**	**0.97**	**0.87**	**1.06**	**0.94**	**1.10**	**0.86**	**0.74**	**0.58**	**0.60**	**1.07**	**0.90**

Annual Historical Data:

Year	Value	5 Yr Average
2015	1.68	0.95
2016	0.89	0.95
2017	0.71	0.95
2018	0.92	0.95
2019	0.56	0.95
2020	0.65	0.95
5 Year Average	**0.95**	

Annual Historical Chart



#20 - Contractor Serious Injuries and Fatalities

Metric Name	Risks	Category	Units	Metric Description
20. Contractor Serious Injuries and Fatalities	Contractor Safety	Injuries	#of work- related injuries or illnesses associated with work for the reporting utility	A work-related injury or illness that results in a fatality, inpatient hospitalization for more than 24 hours (other than for observation purposes), a loss of any member of the body, or any serious degree of permanent disfigurement.

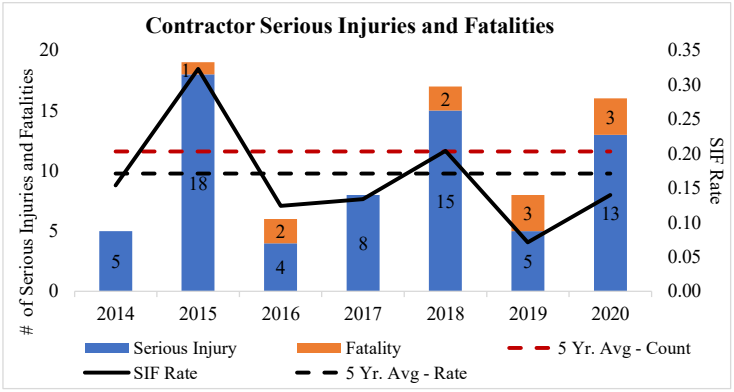
Monthly Historical Data:

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2014	0	0	1	0	0	0	1	1	0	0	1	1	**5**
2015	0	4	3	2	2	3	3	0	0	0	1	1	**19**
2016	0	0	1	0	3	2	0	0	0	0	0	0	**6**
2017	0	1	0	2	1	1	0	1	1	1	0	0	**8**
2018	1	0	3	0	5	2	1	0	1	1	1	2	**17**
2019	0	0	0	0	1	2	2	2	0	1	0	0	**8**
2020	1	2	1	2	1	0	4	1	0	3	0	1	**16**
Average by Month	**0.3**	**1.0**	**1.3**	**0.9**	**1.9**	**1.4**	**1.6**	**0.7**	**0.3**	**0.9**	**0.4**	**0.7**	**11.3**

Annual Historical Data:

Year	Serious Injury	Fatality	Total	5 Yr Average - Count	SIF Rate	5 Yr Average - Rate
2014	5	0	5	11.6	0.154	0.171
2015	18	1	19	11.6	0.323	0.171
2016	4	2	6	11.6	0.124	0.171
2017	8	0	8	11.6	0.134	0.171
2018	15	2	17	11.6	0.204	0.171
2019	5	3	8	11.6	0.071	0.171
2020	13	3	16	11.6	0.140	0.171
5 Year Average	**10**	**2**	**12**		**0.171**	

Annual Historical Chart



#21 - Contractor Lost Work Day Case Rate

Metric Name	Risks	Category	Units	Metric Description
21. Contractor Lost Work Day Case Rate	Contractor Safety	Injuries	# of Lost Workday (LWD) cases incurred for contractors per 200,000 hours worked associated with work for the reporting utility.	This measures the number of Lost Workday (LWD) cases incurred for contractors per 200,000 hours worked (for approximately every 100 contractors). A Lost Workday Case is a current year OSHA Recordable incident that has resulted in at least one lost workday. An OSHA Recordable incident is an occupational (job related) injury or illness that requires medical treatment beyond first aid, or results in work restrictions, death or loss of consciousness. The formula is: LWD Case Rate = Number of LWD Cases / productive hours worked x 200,000.

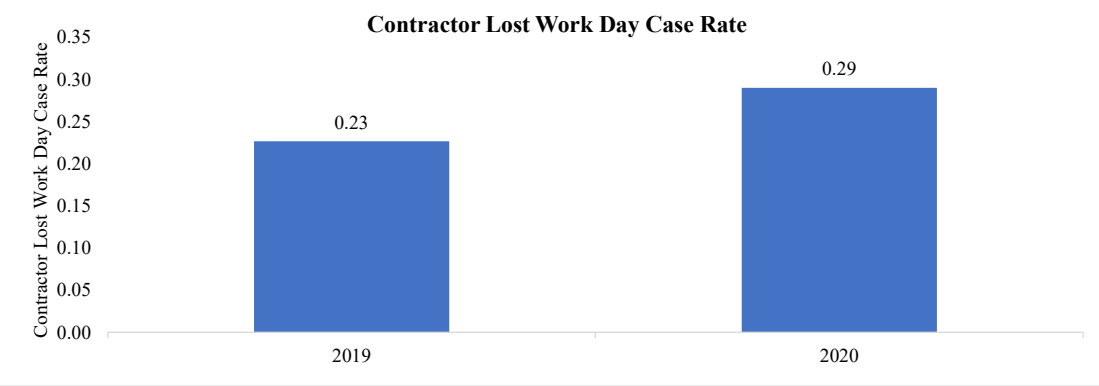
Monthly Historical Data:

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2019	0.33	0.14	0.11	0.12	0.11	0.21	0.21	0.38	0.38	0.17	0.35	0.21	**0.23**
2020	0.22	0.35	0.23	0.62	0.42	0.00	0.55	0.33	0.00	0.25	0.09	0.51	**0.29**
Average by Month	**0.33**	**0.14**	**0.11**	**0.12**	**0.11**	**0.21**	**0.21**	**0.38**	**0.38**	**0.17**	**0.35**	**0.21**	**0.23**

Annual Historical Data:

Year	Value
2019	0.23
2020	0.29

Annual Historical Chart



#22 - Public Serious Injuries and Fatalities

Metric Name	Risks	Category	Units	Metric Description
22. Public Serious Injuries and Fatalities	Public Safety	Injuries	Number of Serious Injuries and Fatalities	A fatality or personal injury requiring in-patient hospitalization involving utility facilities or equipment. Equipment includes utility vehicles used during the course of business.

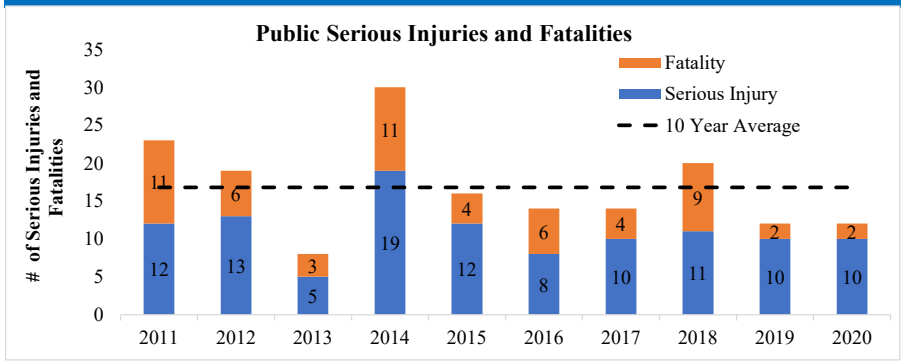
Monthly Historical Data:

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
2011	6	1	0	3	3	0	0	1	2	0	4	3	**23**
2012	1	0	1	1	2	2	4	2	0	0	4	2	**19**
2013	2	0	0	0	0	0	3	1	0	2	0	0	**8**
2014	0	3	2	1	9	4	1	7	0	2	1	0	**30**
2015	0	2	1	1	2	1	0	2	1	2	4	0	**16**
2016	2	1	1	1	4	0	0	0	1	2	1	1	**14**
2017	0	2	1	2	1	2	0	1	2	0	0	3	**14**
2018	0	4	2	1	1	3	1	0	2	2	4	0	**20**
2019	1	0	1	0	0	2	2	2	0	3	1	0	**12**
2020	2	0	1	2	2	0	2	1	1	0	0	1	**12**
Average by Month	**1.4**	**1.3**	**1.0**	**1.2**	**2.4**	**1.4**	**1.3**	**1.7**	**0.9**	**1.3**	**1.9**	**1.0**	**17**

Annual Historical Data:

Year	Serious Injury	Fatality	Total	10 Yr Average
2010	15	7	22	
2011	12	11	23	16.8
2012	13	6	19	16.8
2013	5	3	8	16.8
2014	19	11	30	16.8
2015	12	4	16	16.8
2016	8	6	14	16.8
2017	10	4	14	16.8
2018	11	9	20	16.8
2019	10	2	12	16.8
2020	10	2	12	16.8
5 Year Average	**10**	**5**	**14**	
10 Year Average	**11.5**	**6.2**	**16.8**	

Annual Historical Chart



#23 - Helicopter / Flight Accident or Incident

Metric Name	Risks	Category	Units	Metric Description
23. Helicopter / Flight Accident or Incident	Aviation Safety Helicopter Operations Public Safety Worker Safety Employee Safety	Vehicle	# of accidents or incidents (as defined in 49 CFR Section 830.5 "Immediate Notification") per 100,000 flight hours	Defined by Federal Aviation Regulations (FARs), reportable to FAA per 49-CFR-830.

Monthly Historical Data is provided in Tab All Metric Data - Mon

Annual Historical Data:

Year	# of accidents or incidents per 100,000 flight hours	# of accidents or incidents	Total Flight Hours
2014	-	0	2,031
2015	-	0	2,574
2016	-	0	2,567
2017	-	0	3,764
2018	24.2	1	4,131
2019	-	0	6,154
2020	-	0	5,916
2014 - 2020 Totals	**3.7**	**1**	**27,136**

Annual Historical Chart