BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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Application of PACIFIC GAS AND ELECTRIC COMPANY for Authority Among Other Things, To Decrease its Rates And Charges for Electric and Gas Service, and Increase Rates and Charges for Pipe Expansion Service.	Application 94-12-005 (Filed: December 9, 1994)
Commission Order Instituting Investigation Into the Rates, Charges, Service And Practices of Pacific Gas and Electric Company.	Investigation 95-02-015 (Filed: February 22, 1995)
Order Instituting Rulemaking for Electric Distribution Facility Standard Setting.	Rulemaking 96-11-004 (Filed: November 6, 1996)

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) 2018 ANNUAL REPORT OF COMPLIANCE WITH GENERAL ORDER 166

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Dated: **October 31, 2018**

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Application of PACIFIC GAS AND ELECTRIC COMPANY for Authority Among Other Things, To Decrease its Rates And Charges for Electric and Gas Service, and Increase Rates and Charges for Pipe Expansion Service.	Application 94-12-005 (Filed: December 9, 1994)
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SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) 2018 ANNUAL REPORT OF COMPLIANCE WITH GENERAL ORDER 166

Southern California Edison Company (SCE) hereby submits its 2018 Annual Report of Compliance with General Order 166 ("G.O.166"), Standards for Operation, Reliability, and Safety during Emergencies and Disasters, and Section 364(b) of the Public Utilities Code, for the period July 1, 2017 – June 30, 2018. The Report consists of the following:

Compliance Statement
Southern California Edison Storm Plan (Confidential Version)
Southern California Edison Storm Plan (Public Version)
Appendix F: Corporate Emergency Communications Management Plan
Appendix G: Emergency Phone Lists
Appendix H: 900 MHz Radio Emergency Talk Groups
Appendix I: Trained Emergency Personnel
Appendix J: Major Storm After Action Reports (AAR)
Appendix K: Mutual Assistance Agreements • CUEA Mutual Assistance Agreement • Western Regional Mutual Assistance Agreement executed by, inter alia, SCE

• Edison Electric Institute Mutual Assistance Agreement submitted in accordance with G.O.166, Standard 2
Appendix L: Confidentiality Statement

Respectfully submitted,

KRIS G.VYAS

/s/ Kris G. Vyas

By: Kris G. Vyas

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October 31, 2018

SOUTHERN CALIFORNIA EDISON®

An *EDISON INTERNATIONAL*® Company

2018 Annual Report for Southern California Edison Company (U338-E) of Compliance with General Order 166

Compliance Statement
Public Version

October 31, 2018

ANNUAL COMPLIANCE REPORT OF
SOUTHERN CALIFORNIA EDISON (U338-E)
FOR THE PERIOD JULY 1, 2017 - JUNE 30, 2018
(GENERAL ORDER NO. 166)

This report is submitted by Southern California Edison Company ("SCE") in compliance with General Order No. 166 ("G.O.166"), Standards for Operation, Reliability, and Safety during Emergencies and Disasters, and Section 364(b) of the Public Utilities Code. This compliance report comprises the following:

Compliance Statement	Summarizing SCE's compliance with G.O. 166 for the twelve-month period ending June 30, 2018 (the "compliance period")
Public Version	2018 Storm Plan 2018 Fire Prevention Plan

Confidential Version	2018 Storm Plan Appendices:
	• Appendix F-Corporate Emergenc Communications Plan
	• Appendix G-Emergency Operations Center and Mobile Command Center Phone Numbers
	• Appendix H-900 MHz Talk Groups
	• Appendix-I-Trained Emergency Personnel
	  ○ 2017
	  ○ 2018
	• Appendix K-Mutual Assistance Agreements
	  ○ CUEA Mutual Assistance Agreement
	  ○ Western Regional Mutual Assistance Agreement
	  ○ Edison Electric Institute Mutual Assistance Agreement
	• Appendix J-After Action Reports:
	  ○ 2018 Heat Storm Exercises

Compliance Statement:

G.O. 166, STANDARD 1. Emergency Response Plan

As part of SCE's continued commitment to effective restoration processes and communication following Incident Command System (ICS) principles we have trained approximately 2,236 personnel in ICS general and position scpedific classes.

Routine Updates

In compliance with the requirements of Standard 1 of General Order No. 166, all details of the 2018 Storm Plan have been validated and updated as necessary. The SCE Storm Plan was extensively revised during the 2017 compliance period. The material was aligned to the phases of response and actions were tied to position specific checklists. Restoration priorities (strategic and tactical), restoration strategies, roles and responsibilities, storm classification, and mutual assistance portions of the planning did not change but are reviewed and updated annually with all internal and external stakeholders.

STANDARD 2: Mutual Assistance Agreement(s)

SCE is a member of the Mutual Assistance Agreement among Members of the California Utilities Emergency Association. As such, we maintain contact with the Authorized Representatives of other utilities and periodically discuss issues surrounding the utilization of the agreement.

SCE is also a member of the Western Regional Mutual Assistance Agreement and the Edison Electric Institute Mutual Assistance Agreement.

Mutual Assistance is included in the End State Conditions of Phase 1C, the Objectives and Critical Tasks in Phase 2C, and as part of the Essential Elements of Information in Appendix D. Copies of all executable mutual assistanct agreements are included with the compliance submittal.

STANDARD 3: Emergency Training and Exercises

There were no major outages in 2018 that required the use of the 2018 Storm Plan. The 2018 Storm Plan was exercised in June 2018 as a function of training and exercising emergency responders and a copy of the after action report is included with this compliance update.

STANDARD 4: Communications Strategy

Communications strategies are verified/updated annually and included with this submittal

STANDARDS 5 – 8:

These standards prescribe specific actions to be taken by the utility during major outages. SCE experienced no major outages during the compliance period.

STANDARD 9: Personnel Redeployment Planning

During the compliance period, SCE conducted training for selected employees on the performance safety standby and damage assessment activities during emergencies and major outages. SCE's Call Center Plan provides that all emergency and outage related calls receive priority queuing to trained representatives.

STANDARD 10: Annual Pre-Event Coordination

During the compliance period, SCE complied with this standard through participative planning, exchange of contact information, and participation in emergency exercises with external agencies, including Cal OES.

STANDARD 11: Annual Report

This compliance statement complies with the first paragraph of this standard. In addition, a report of the number of trained emergency personnel for 2017 and 2018 has been included in the updated 2018 Storm Plan in compliance with the second paragraph of this standard.

STANDARDS 12 – 13:

These standards prescribe specific actions to be taken by the utility during a measured event. SCE did not experience a measured event during the compliance period.

Southern California Edison

2018 Storm Response Plan

Prepared by:
Business Resiliency
June 30, 2018

Plan Technical Specialist:
Business Resiliency Duty Manager

Table of Contents

Plan Acronyms:

BRDM-Business Resiliency Duty Manager
EOC-Emergency Operations Center
IC-Incident Commander
ICS-Incident Command System
IMT-Incident Management Team
IST-Incident Support Team
LNO-Liaison Officer
LSC-Logistics Section Chief
OSC-Operations Section Chief
PIO-Public Information Officer
PSC-Plans Section Chief
REOC-Regional Emergency Operations Center
SFO-Safety Officer

PURPOSE

This *Storm Plan* is part of Southern California Edison's (SCE) effort to respond to emergency incidents resulting in the disruptions to the electrical system. It describes the concepts of operations and policies that guide how the company plans for, addresses, and responds to emergency electrical incidents using the Incident Command System (ICS) structure adapted with utility-specific solutions.

This plan is designed to ensure safe and efficient restoration for any type of storm by:

- Consistent use of the ICS response structure and principles
- Application of pre-determined priorities
- Application of pre-determined processes to manage emergency roles like damage assessment, line clearing, estimated restoration times, communications, etc.
- The development of accurate situational awareness and the distribution of a consistent common operating picture

Plan Intent

The intent of this plan is to ensure SCE prepares for and responds to storms as one team using common protocols, terminology, and organizational structure that aligns with nationally recognized best practices. SCE will collaborate with the communities they serve in preparing for and responding to emergency events.

The plan goals are as follows:

- Define the criteria for activating and deactivating the *SCE Storm Plan*
- Outline the communications strategy and notification procedures by which SCE will communicate with its customers, the public at large, appropriate state and local government agencies, and other important stakeholders in the restoration process
- Provide an overview of the strategies that SCE will use to employ mutual assistance to share resources with other utilities in order to expedite the restoration of service to customers

Regulatory Requirements

The Storm Plan and its key supporting documents provide policy guidance and authority to the Storm Plan.

- California Public Utilities Commission's General Order Number 166: Standards for Operation, Reliability, and Safety during Emergencies and Disasters (Revised January 12, 2012)
- General Order Number 95 and General Order Number 128
- Edison System Operating Bulletin No.21: Capacity Shortage Contingency Plan (Revised June 13, 2012)
- Fire Prevention Plan
- SCE North Coast Region Severe Weather Plan (Santa Barbara)

This plan does not supersede or replace existing procedures for safety, hazardous materials response, or other similar procedures adopted and in place. The Storm Plan does not supersede specific response plans prepared to address particular circumstances or to comply with regulatory requirements.

This plan is updated annually by June 30.

How to Use this Plan

The *SCE Storm Plan* is a guide for incident response personnel as they address key functions and take the necessary critical actions when responding to storms.

This plan provides a wide range of information meant to help guide the activities of critical personnel and entities during storm events. Individuals utilizing this plan during a real-world incident or exercise should:

Step 1: **Assess the plan's applicability**

Review *Section 3: Incident Conditions* to ensure the current scenario matches the plan's intended situation. If the plan assumptions do not match the real-world or exercise scenario, it may be necessary to adapt the recommendations. Request support from Business Resiliency as needed.

Step 2: Review Incident Triggers and Initial Actions

Review the triggers in *sections 6-12*, to determine if the incident meets the conditions for activating this plan. If any of the triggers are met, follow the expected actions outlined in the associated section. If no triggers are identified, but there is concern over the severity or complexity of the situation, contact the Business Resiliency Duty Manager (BRDM) for further guidance.

Step 3: Activate Necessary Incident Management Teams

Once the need for an activation of the Incident Management Teams occurs, assess which response teams to activate and an appropriate organizational structure (see *Appendix A* for sample organizational structures). The BRDM coordinates all team and personnel activations through the Watch Office.

Step 4: Compile situational awareness information in preparation for response.

INCIDENT CONDITIONS

The electric industry uses the term *storm* to describe a disruption of electrical services. The *SCE Storm Plan* applies to storms and other major disruptions to the electrical system requiring additional assistance and coordination. The plan also directs how SCE addresses situations that could adversely affect other company operations and the community it serves.

Planning Factors

Planning Factors outline the reasonable conditions expected in a storm scenario requiring the use of this plan. This plan is designed to be scalable to fit a variety of storm scenarios. The following scenarios help to guide planning for the intensity and magnitude of the incidents as well as outline the types of damage likely to occur. Due to the variability of storms, this plan is intended to be used by individuals with the knowledge, training, and expertise to assess the appropriateness of recommended actions and adapt them as applicable.

Common Storm Scenarios:

- **Wind**
  Windstorms typically occur from fall to spring. Although strong wind is often associated with winter rain and lightning storms. Typically, damage is sustained when tree limbs break and fall on distribution lines and poles.
- **Rain**
  Most California rainstorms occur from November to April. These winter rains are the result of cold fronts from the Pacific. Most cold fronts pass through within a day, but often a series of storms move across the service territory causing storm damage for several days, occasionally lasting a week or more. Most rain related damage to the utility's infrastructure is caused by lightning strikes, broken tree limbs, toppled trees, fallen poles due to ground saturation, high winds, snow, and ice on trees and conductors. Heavy rain, particularly in burn scarred regions from recent fires, increase the risk of mudslides.

- **Floods**
  SCE does not typically encounter flood activity. Heavy rains may cause temporary and localized flooding. Some areas are prone to mud and rock slides that frequently damage facilities and block access to storm-damaged areas. Historically, rainstorms cause more damage to the distribution system than any other storm type.
- **Lightning Storms**
  Lightning storms have the potential to cause extensive damage to transmission and distribution systems. When lightning strikes a circuit it can produce conductor, insulator, and equipment damage including damage to transformers. High lightning areas are primarily located in the deserts, mountains, and Central Valley regions of the service territory. Summer lightning strikes are normally associated with the northwesterly impulses of monsoonal moisture originating in Northern Mexico, coupled with an uplift caused by the mountains and desert heat. This type of lightning typically occurs in the desert and mountain regions at the same time urban districts are experiencing heat storm activity. Winter lightning strikes are normally associated with Pacific rainstorms and can be widespread across the service territory.
- **Snow/Sleet**
  Snow and sleet typically affect only the mountain regions during the winter months. Ice and snow loading on tree limbs can damage equipment when tree limbs break and fall on wires or poles.
- **Heat**
  Heat storms occur from late spring to early fall and peak during the summer months up until early fall when air conditioner usage increases load. Heat storms frequently cause abnormally high loads and imbalances on distribution circuits. Most heat storm recovery efforts involve identifying and replacing overloaded and failed distribution transformers.
- **Fires**
  The California fire season typically begins during the summer and peaks in the fall, but fires are becoming a more frequent threat year round. Most fire recovery efforts involve rebuilding distribution facilities after the fire has passed through affected areas. As fires often affect areas that are relatively inaccessible, outage lengths are usually much longer than other types of storms and catastrophic events. Fires also increase the risk of mudslides by creating burn scarred regions.

The National Weather Service may declare "Red Flag Warning" conditions when extreme fire weather conditions are forecast within the next 12-hour period. These conditions are defined as wind speed greater than 25 miles per hour and relative humidity less than 15 percent. During Red Flag Warning periods, System Operating Bulletin 322 restrictions are implemented. The bulletins are maintained in hard copy by the switching centers, Grid Control Center (GCC), and Alternate Grid Control Center (AGCC) for backup purposes. The district may be asked to supply fire observers. These individuals should be assigned and outfitted with proper equipment before they report to the fire scene.

Assumptions

Assumptions are considerations likely to be true given the planning factors that affect operational activity and decision-making. Some assumptions that may apply for storm situations are:

- Local and county Emergency Operations Centers (EOC) are activated to coordinate the local response
- SCE personnel are deployed to communicate and coordinate activities with county EOCs and the California Governor's Office of Emergency Services Regional Emergency Operations Center (REOC)
- The Watch Office has been informed which Business Continuity and Disaster Recovery Teams are activated
- Emergency responders and other utilities are available to coordinate response activity where necessary
- Depending on the severity of the storm, departments and organizational units may be required to modify their operations
- For 'notice incidents' (incidents which SCE is aware of prior to occurrence), response operations may be deployed prior to the incident occurring
- For 'no-notice incidents' (incident which occur without warning), response operations will move immediately into the response phase of operational activity

PHASES OF OPERATION

Southern California Edison response plans are created to align to a standardized state and federal phase structure, to help align activity across all levels of utility and government activity. The phases are broken down into:

- Pre-Incident: Pre-incident activity leading up to an incident occurring (this is not addressed in this plan because fatalities occur as a 'no-notice' event)
- Response: Period spanning from when the incident occurs and a team is stood up to respond, until the team has demobilized and transitioned operations to long-term recovery
- Recovery: Spanning the period from when the response team has stood down and transitioned to long-term recovery, until all recovery operations have been completed

Each of these 3 stages is further broken down to provide a greater granularity for planning purposes and the following chart depicts how these phases align.

Pre-Incident			Response			Recovery
1A	1B	1C	2A	2B	2C	3
Normal Operations	Increased Likelihood	Credible Threat	Activation	Initial Response	Sustained Response	Long-term Recovery

For storm incidents that SCE has awareness of prior to impact (notice events), operational activity will begin at phase 1B: Increased Likelihood. For storm incidents that occur without warning or awareness by SCE (no-notice events), operational activity will jump straight to phase 2A: Activation.

1A	No known significant threats exist that are likely to affect the SCE electrical systems. This phase is known as 'blue-sky'.
1B	SCE becomes aware of a potential storm event that may have adverse impacts on the SCE electrical system, but the likelihood of the events occurring within the SCE territory and the extent the potential damage are still uncertain. This phase is driven by increased monitoring and limited communication.
1C	A potential storm incident has been identified that is expected to result in a disruption of SCE electrical services. This phase focuses on conducting early assessments of the expected damages and prestaging resources for response to the incident.
2A	This phase describes the activation of a team after an incident has resulted in a disruption of the SCE electrical system. If a team stood up in Phase 1C, prior to the incident occurring, this phase will be skipped.
2B	Details the actions of the Incident Management Team(s) (IMT) in the early response operation, focusing on situational awareness and establishing a regular response cycle allowing all teams to coordinate effectively.
2C	Outlines the continued activities of the IMT(s) once a regular operational cycle and situational awareness have been established.
3	Defines the responsibilities of the Recovery Taskforce once all IMTs have been demobilized.

SUMMARY OF OPERATIONS

Prevention and Protection - Mitigation

Vegetation Management

In many emergencies, vegetation management is a critical factor for public safety, access, and restoration. Vegetation issues can be a deciding factor in the duration of the restoration. Further, vegetation issues often must be addressed early in the restoration to facilitate the repairs. It is common in an emergency incident to require more vegetation resources than are normally employed on a day-to-day basis. Thus, it is imperative that SCE acquire the adequate vegetation resources and have them on property working as soon as possible. As with line contracts, emergency vegetation contracts are pre-arranged with both existing vegetation contractors and emergency only, non-standard contractors.

Weather and Hazard Monitoring

The most common early indicator of a potential incident is the weather forecast. Thus, as a cornerstone of situational awareness, SCE continuously monitors weather. SCE escalates predictions of potentially damaging weather incidents or other hazards and controlling authorities shall take all necessary preparatory actions as summarized in this Storm Plan in accordance with the predicted incident.

For non-weather incidents, BR is responsible for collecting necessary intelligence information from Corporate Security, state or federal agencies or other sources as they arise. In order to efficiently share critical situational data, SCE employees have access to an information dashboard that displays weather information as well as outage data, statistics, maps, and damage assessment information.

Electrical Systems Monitoring

Grid Ops is responsible for monitoring and operating SCE's electrical grid in a safe and reliable manner in conjunction with appropriate regulatory agencies. Operating 24 hours per day, 365 days per year, Grid Ops responds first to emergent incidents and monitors situations that might require a significant emergency response. Grid Ops makes the appropriate notifications through the Grid Control Center's notification process as well as notifying the appropriate emergency response personnel whenever a possible or current situation might require a significant response.

RESPONSE

The response section details how personnel are expected to respond to an actual emergency incident. It details roles and responsibilities, and the appropriate actions to take for each threat type. All incident types follow the same basic emergency response approach with the Incident Command System (ICS) being used to manage all corporate level activations, where significant customer impacts are anticipated.

Prior to the activation of ICS, the Transmission and Distribution Organizational Unit will respond to the incident in accordance with standard response procedures. For all incidents, there are five steps to the emergency response process:

1. Detect and evaluate the situation as soon as an emergency event is observed or reported
2. Determine the level of the threat the incident poses using the incident complexity analysis
3. Notify internal and external entities including the Independent System Operator (ISO) according to the appropriate System Operating Bulletin (SOB) and continue communications to ensure all emergency responders have the information needed to make timely and sound decisions
4. Assume the appropriate role and respond to the incident using the SOB and incident management protocols with public and employee safety being the highest priority.
5. Once the incident is officially terminated, conduct formal hot washes/debriefing sessions and follow decommissioning best practices including After Action Reports. A thorough follow-up includes reviewing all plans and procedures, making the necessary revisions from lessons learned, and ensuring distribution to all stakeholders/plan holders

Step 1: Detection and Evaluation – Early Warning and Tracking

When severe weather is forecasted, SCE conducts an evaluation of the storm severity using historical response and management judgment to determine the potential intensity and appropriate response. In anticipation of a storm response, the following actions should be considered:

- Alerting the duty IMT using the established rosters
- Alerting the duty Incident Support Team (IST) using the established rosters if the forecasted situation is of sufficient scope and/or complexity
- Determining the pre-storm objectives
- Conducting incident briefing and pre-incident planning and tactics meetings
- Evaluating the appropriate restoration strategies
- Communicating situation information internally and externally as the Incident Commander determines necessary
- Assess and determine the need to hold resources in preparation for a potential response
- Utilize the existing forecasting model to predict potential impacts the SCE network

- Where appropriate, pre-stage resources in anticipation for a response activation utilizing projected impacts from computer and subject matter expertise modeling

Conference Call Coordination

Since emergencies may arise at any time, potentially, with little or no prior notice, T&D will coordinate with the SCE Watch Office for escalating the appropriate response when an incident occurs. If necessary, the Watch Office works with the BRDM to conduct a conference call to review the situation and utilize the Complexity Analysis to determine if an activation of the Incident Management Teams (IMT) or Incident Support Team (IST) is necessary.

Step 2: Incident Classification

Classifying incidents according to their intensity provides a framework and consistency for communicating the severity of an incident and to aid in the development of restoration strategies and activation of response. The Storm Plan uses incident intensity levels established for the entire SCE service territory and for individual districts. The overall SCE incident intensity level is based on the aggregation of the district level information with consideration for widespread incidents such as transmission or substation interruptions.

There are four levels based on the complexity of the event, extent of the damage, customer impact, and consideration for the response. The storm intensity level must then be fed to the BRDM for inclusion into the corporate complexity analysis. These incident levels are to be used as a guideline to understand the severity of an incident. Actual response and resource needs are determined per incident.

Mild Incident

A mild incident is typically localized to districts within a single region and resources at the district or local level are sufficient to manage response and recovery activities. Mild incidents are frequent, occurring several times in one season. Such incidents can be characterized by average to slightly higher than average number of storm related sustained incidents resulting in:

- Customer interruptions: Typically, less than 2.5% of total customers affected in a district or sector. Region or territory wide: the number of customers impacted is typically less than 1%
- Restoration: sufficient distribution, transmission, substation, and other design, construction, and maintenance resources can be deployed to provide assistance with extended shifts for personnel
- Resources available within the locally impacted area or adjacent areas to respond (or equivalent area of responsibility for other departments)
- Majority of customers are typically expected to be restored in less than 24 hours
- Assets damaged are typically readily available

- Other significant events requiring an elevated response, as determined by management

Moderate Incident

A moderate incident is typically spread over multiple districts or in a more intense isolated incident that requires additional resources to manage response and recovery activities. Moderate incidents are experienced only a few times in any one year. Such incidents can be characterized by a higher than normal number of storm related sustained incidents resulting in:

- Customer interruptions: Typically, between 2.5-10% of total customers impacted in a district or sector. Region or territory wide: less than 2-3%
- Restoration: sufficient distribution, transmission, substation, and other design, construction, and maintenance resources from the surrounding Regions can be deployed / reallocated to provide assistance with extended shifts for personnel
- Resources scheduled within the impacted areas or adjacent areas to respond (or equivalent area of responsibility for other departments)
- Majority of customers are typically expected to be restored in less than 48 hours
- Assets damaged are typically available
- Isolated damage to transmission or substation facilities within a local region
- Other significant events requiring this elevation of response, as determined by management

Severe Incident

A severe incident is either an incident with escalating affecting across multiple regions or a severe intensity isolated incident. Such incidents are rarely experienced on a yearly basis, occurring on average once or twice every ten years. Such incidents are characterized by an extremely high number of storm related sustained incidents resulting in:

- Customer interruptions: Typically, between 10-20% of total customers impacted. Region or territory wide: 5-10%
- Restoration: insufficient distribution, transmission, substation, and other design, construction, and maintenance resources. Assistance from non-adjacent areas may be required
- Resource requirements (>100% of area resources) that affect multiple zones and require coordinated effort to manage response and recovery activities
- Majority of customers are expected to be restored in less than 72 hours
- Assets damaged may exceed those available
- Extensive damage to transmission and/or distribution facilities
- Other significant events requiring this elevation of response, as determined by management

Catastrophic Incident

A catastrophic incident may require additional assistance if the resources required to respond exceed the available SCE resources and restoration may be prolonged beyond 72 hours. Such incidents are extremely rare and may cause such significant damage to the system resulting in:

- A company-wide need to focus on electrical restoration efforts
- Customer interruptions: Greater than 20% of total customers affected in district or sector
- Greater than 10% region or territory wide
- Restoration: insufficient distribution, transmission, substation, and other design, construction, and maintenance resources. Assistance from non-adjacent areas is required (>100% of SCE resources)
- Restoration may be prolonged beyond 72 hours
- Assets damaged may exceed those available
- Extensive damage to transmission and/or distribution facilities
- Potential safety and/or health concerns
- Other significant events requiring this elevation of response, as determined by management

LEVEL	INCIDENT (STORM) INTENSITY
Level 1 MILD	Incidents or planned events with no potential for severe harm but require management visibility. "Sunny Day or Blue Sky" situations.
Level 2 MODERATE	Incidents with little potential for severe harm, but can escalate rapidly if not managed properly.
Level 3 SEVERE	Incidents with the potential to result in severe harm to the company, but there is a higher level of familiarity or expectation.
Level 4 CATASTROPHIC	A rare and unanticipated emergency with the potential to do, or in the process inflicting irreparable and severe harm to the company. The most severe type of incident.

Note: Other considerations may influence decision on which Incident Level Activation is being requested. If the Incident Level Activation used is different than above indicates, attach supporting documentation.

PHASE 1A: NORMAL OPERATIONS

No known significant threats exist that are likely to affect the SCE electrical systems. This phase is referred to as 'blue-sky' conditions.

Trigger

There is no trigger for this phase because it represents normal conditions, without any significant disruptions to the SCE electrical systems. Even if a storm activation has occurred, areas not impacted by the incident or not activating to support response operations are considered to be in normal operations.

End State Condition

Phase 1A continues uninterrupted until either:

- A potential threat to the SCE electrical system is identified, and increased monitoring and/or pre-incident activation of response teams occurs, or;
- A no-notice incident occurs which significantly disrupts the SCE electrical system and teams activate to coordinate response activity.

Objectives and Critical Tasks

- All organizations are operating under their specific operating guidelines and continuously monitoring for real or potential adverse conditions.

- The Weather Services team within Trading Market Operations will conduct daily weather monitoring to ensure awareness of potential upcoming threats, and publish weekly forecasts to support Transmission and Distribution Operations.

PHASE 1B: INCREASED RISK (>24 HOURS PRE-INCIDENT)

SCE becomes aware of a potential storm event that may have adverse impacts on the SCE electrical system, but the likelihood of the events occurring within the SCE territory and the extent the potential damage are still uncertain. This phase is driven by increased monitoring and limited communication.

Triggers

- The Watch Office, Business Resiliency Duty Manager (BRDM), or Storm Chief becomes aware of an upcoming storm event that has the potential to result in a disruption of SCE electrical services more than 24 hours in the future

End State Conditions

- Weather Services has evaluated any potential weather implications and provided input to the Storm Chief and the BRDM as requested
- The Storm Chief has evaluated the potential impacts the projected incident will have on SCE electrical services, and coordinated with subject matter experts and the BRDM to determine appropriate actions moving forward
- The BRDM conducted a complexity analysis engaged with subject matter experts to evaluate appropriate activation criterion for the upcoming storm incident

Conclusion of phase:

- **Move to phase 1C (Credible Threat)**: The BRDM with input from the complexity analysis and subject matter experts, determines that a credible threat to SCE electrical systems exists, and that a team must be activated in preparation for the storm incident prior to the incident

– OR –

- **Demobilize**: The upcoming storm incident has been evaluated and the determination is made that no significant threat exists to SCE electrical systems. A return to Phase 1A: Normal Operations occurs

Objective and Critical Tasks

Phase 1B Objectives		Critical Tasks	Owner *
Situational Awareness	Evaluate projected impacts against SCE assets and determine appropriate team activation as necessary	Evaluate potential impact the incident would have on SCE electrical services and communicate with key stakeholders	Storm Chief
		For weather-based incidents, project the likelihood that the incident will affect the SCE service territory, what areas would likely be impacted, and the parameters of the incident itself	Weather Services
		Provide daily weather forecasts to the Watch Office at the request of the Storm Chief or the BRDM	Weather Services
		At the request of the Storm Chief or BRDM, distribute daily email notifications to key personnel providing details of the event prepared by the Watch Office. Distribution list may include: • Storm Chief • Weather Services • On-Call IST Incident Commander(s) • On-Call Electrical Services IMT Incident Commander(s)	Watch Office
		If appropriate, conduct a complexity analysis and engage with subject matter experts (including the Storm Chief) to determine if an activation of response team personnel is warranted	BRDM
		Direct the Watch Office to place team on Alert Status once an activation is determined to be likely	BRDM
		If an activation is warranted, define the organizational structure and have the Watch Office activate and deploy personnel, providing a time and location of deployment (recommended to deploy personnel 24 hours prior to incident)	BRDM

PHASE 1C: CREDIBLE THREAT (~24 HOURS BEFORE INCIDENT)

A potential storm incident has been identified that is expected to result in a disruption of SCE electrical services. This phase focuses on conducting early assessments of the expected damages and prestaging resources for response to the incident.

Triggers

- An Incident Management Team (IMT) or Unified Command (UC) has been activated and taken operational control of the incident prior to the storm event affecting SCE electrical services

End State Condition

- An inventory check has been performed and required assets and equipment are onsite or in transit
- Initial messaging to SCE personnel and the public has occurred
- Notification of the incident and projected impacts has been made to all key stakeholders

Conclusion of phase:

- **Transition to Phase 2B (Initial Response)**: The storm incident affects SCE electrical systems and a disruption of service occurs. Phase 2A is bypassed (because team activation has already occurred) and the team transitions to Phase 2B: Initial Response

– OR –

- **Demobilization**: A determination is made that the storm incident no longer poses a significant threat to SCE electrical services and the team is demobilized, returning to Phase 1A: Normal Operations

Objectives and Critical Tasks

Phase 1C Objectives		Critical Tasks	Owner *
Health and Safety	Ensure the safety and wellbeing of all SCE personnel and protect the public from hazards associated with SCE assets and activities	Monitor potential health and safety risks at external locations where SCE personnel are operating	SOF
		Ensure resources are identified and assigned to clear electrical hazards with imminent danger as reported by a public agency and/or the public	OSC
		Develop and distribute pre-event messaging (stay away from downed wires, etc.) to public	PIO
		Evaluate and report on potential hazards related to projected work	SOF
Situational Awareness	Evaluate projected impacts against SCE assets and determine staffing needs to support response operations	Review impacted areas for special conditions that may be affected by the incident (e.g. prior burn areas, flood; and in accordance with SOB 322) as well as metro vs rural territory for potential secondary hazards	OSC
		With input from the BRDM, evaluate the needs of the incident and define the appropriate organizational for the incident (see *Appendix A* for a list of recommended organizational structures)	IC
		Determine available resources and equipment based on projected impact	OSC
		Provide daily weather forecasts to the Watch Office at the request of the Storm Chief or the Business Resiliency Duty Manager (BRDM)	Weather Services
		Work with Weather Services to obtain detailed weather forecasts and potential impacts to SCE systems due to fire, wind, rain, etc.	PSC
		LNO establishes contact with EOCs	LNO
T&D, Generation, and EPM	Develop a comprehensive resource plan to allow for restoration of projected customers & rotation of resources	Identify critical resource gaps and mitigate through contractors and/or mutual assistance channels	OSC
		Review and reschedule maintenance outages	OSC
		Set up resource conference calls	OSC
		Ensure adequate resources for TS&O and DBL	OSC
		Determine resource needs and arrange to have crews on site for anticipated impacts	OSC
	Conduct focused assessments on electrical assets critical for load restoration	Stay informed of GCC restoration strategy and support efforts through allocation and assignment of resources	OSC
		Review system abnormal for potential return to service	OSC

Phase 1C Objectives		Critical Tasks	Owner *
IT	Evaluate scheduled IT outages and determine outage impacts on systems critical to supporting restoration activities (telecom, relay protection, EMS, OMS, SCE.com, etc.)	Review scheduled IT outages and coordinate rescheduling	IT Tech Spec
		Assess the need to activate supplemental emergency action and/or business continuity plans for different regions of the SCE service territory and critical applications	IC
Logistics and Transportation	Assess potential impacts to transportation corridors and resource coordination points (e.g., laydown yards, PODs, etc.) necessary to support resource and personnel movement following the upcoming storm event	Inventory assessments are conducted in the forecasted impact regions to ensure critical assets and equipment are available/ordered, and able to be in place prior to the event	LSC
		Identify operational resource coordination points (e.g., laydown yards, PODs, etc.)	LSC
		Assess the availability of fuel resources and coordinate the provision of fuel for SCE and contractor vehicles, equipment, and aircraft	LSC
		Coordinate with the OSC to assess the availability of contract resources to meet staffing limitations for all affected OUs	PSC
		Coordinate with the Air Operations Branch Director to allocate air operations resources to support aerial surveys and the transportation of mission critical personnel	OSC
		Assess lodging and meals availability and begin securing necessary accommodations at the discretion of the Operations Section Chief	LSC
		Reconcile ongoing travel and transportation limitations within impacted areas	LSC
Public and Employee Messaging	Communicate with our customers, the general public, public officials, SCE employees, and other stakeholders as necessary providing updated projections on potential impacts resulting from the upcoming storm event	Coordinate the production and distribution of employee notifications outlining safety information and providing guidance on the upcoming incident	PIO
		Coordinate with the Business Customer Division (BCD) to ensure systems are in place to implement macro-messaging as necessary following the upcoming event	OSC
		Coordinate with CCC Branch Director to ensure the use of the Interactive Voice Response (IVR) system at the Customer Contact Centers for disseminating critical information to customers	OSC
		Determine need to use SCE Alert process or other means to inform elected officials	LNO

** Color codes in the "Owner" column align to the color of vests worn by EOC personnel*

PHASE 2A: ACTIVATION (0-2 HOURS POST-INCIDENT)

Phase 2A only applies to no-notice incidents, where a team has not already been activated and taken operational control. The purpose of this phase is to assess the extent and complexity of the incident and evaluate the number and type of personnel/teams to activate in response to the incident. Until a team has been activated and taken operational control of the incident, the Business Resiliency Duty Manager (BRDM) will operate as the Incident Commander, fulfilling operational responsibilities until a team is available.

Trigger

- A no-notice incident results in the disruption of SCE electrical services, warranting an assessment of the need to activate a team to coordinate operational activity

End State Condition

- The BRDM, with input from the Storm Chief, subject matter experts (SME), and the complexity analysis, determined that an activation is warranted under the current conditions
- A team (either ES-IMT or Unified Command (UC)) has been activated and deployed
- Initial safety concerns have been assessed and protective actions have been implemented to the extent reasonable
- Initial outreach to field organizations to gather early damage assessment information has been conducted

Objectives and Critical Tasks

Phase 2A Objectives	Critical Tasks	Owner
Ensure the safety of the public, employees and their families, contractors, and first responders from hazards associated with SCE	Coordinating with the Storm Chief and Corporate Communications, ensure messages are developed in response to incident specific hazards, and communicate those messages to the public and SCE personnel as appropriate	BRDM
Evaluate the staffing requirements for this incident, build an initial organizational structure, and request staffing support where necessary	Notify the Business Resiliency Duty Manager and Storm Chief of the incident	Watch Office
	If warranted, notify the Officer in Charge (OIC) of the incident	BRDM
	Conduct complexity analysis if the incident is not self-evident	BRDM
	Coordinate with the CMC to prepare the Delegation of Authority letter	BRDM
	At the discretion of BRDM, use ENS to initiate a coordination conference call with: • BRDM – Facilitator • Watch Office • T&D Storm Chief Additional attendees for situational awareness may include: • Weather Services • On-call IST team members (roster maintained by Watch Office) • On-call Electrical Services IMT team members (roster maintained by Watch Office) • Duty IMT ICs, GCC, BCD, CSOD, CRE, Consumer Affairs, Claims, Corporate Security, Power Production, and other stakeholders as necessary	Watch Office
	Based on input from the Storm Chief, Weather Services, other subject matter experts, and the complexity analysis determine whether a team activation is warranted under the current and projected conditions	BRDM
	If a team activation is warranted, coordinate with the Watch Office to either activate and deploy selected IST and IMT personnel, or place them on alert status	BRDM
	Per BRDMs guidance, utilize ENS to activate selected IMT and IST personnel and direct them to report to a suitable location, or place them on alert status	Watch Office
	Brief incoming response personnel until a transition of operational control occurs	BRDM
Coordinate with affected organizations to conduct initial damage assessments	Coordinate with organizations (including but not limited to GCC, DOCs, GOC, TCC, and ESOC) and receive initial and projected damage assessments for use by response personnel once they arrive on scene	Storm Chief

PHASE 2B: INITIAL RESPONSE (0-24 HOURS POST-INCIDENT)

Phase 2B focuses on initiating detailed damage assessments, the stabilization of SCE infrastructure, restoration prioritization, and creating a common operating picture.

Trigger

Response personnel have arrived at the EOC or alternate facility and taken operational control of the incident from the BRDM.

End State Condition

- Early damage assessments have been conducted by field organizations and a common operating picture has been established
- Resources requirements have been reviewed and resource support has been deployed
- Initial restoration work has been prioritized and initiated
- SCE Agency Reps are embedded with external response structures and are broadly coordinating situational awareness and restoration efforts where necessary

Objectives and Critical Tasks

Phase 2B Objectives		Critical Tasks	Owner *
Health and Safety	Ensure the safety and wellbeing of all SCE personnel and protect the public from hazards associated with SCE assets and activities	Monitor potential health and safety risks where SCE personnel are operating	SOF
		As needed, conduct employee accountability for all impacted geographic locations	HR Specialist
		Identify potential health and safety associated with SCE facilities and notify SCE personnel, the public, and local authorities where appropriate	SOF
		Coordinate with DOCs and CA to ensure critical care and medical baseline customers have been identified and notified	OSC
		Communicate need to document and report all safety incidents	SOF
		Initiate ENS messaging to notify all at risk SCE personnel of safety issues related to the upcoming event (rain, lightning, etc.)	PIO/SOF
T&D, Generation, and EPM	Conduct focused assessments on electrical assets critical for load restoration	Coordinate with the GOC and GCC to determine status of infrastructure and assess impacts on restoration strategy	OSC
	Develop and implement a high-level strategy for the safe and efficient restoration of electric power while considering standing priorities (public safety, critical facilities, medical baseline customers, etc.)	Identify focus areas for further damage assessment	OSC
		Stay informed of GCC restoration strategy and support efforts through allocation and assignment of resources	OSC
		Coordinate with the Weather Services team to ensure that restoration strategies account for potential inclement weather conditions.	OSC
		Identify critical resource gaps and mitigate through contractors and/or mutual assistance channels. Coordinate all MA requests with the Business Resiliency Duty Manager (BRDM)	OSC
		Develop an electrical system restoration strategy, prioritizing the recovery of T&D and Generation facilities and assets critical to re-establishing electrical services throughout the SCE service territory	OSC
		Ensure resources are identified and assigned to clear electrical hazards with imminent danger as reported by the public and government agencies	OSC

Phase 2B Objectives		Critical Tasks	Owner *
		Determine if system restoration should be executed by area based or order based	OSC
		Establish damage assessment strategy	OSC
Environmental Resp.	Assess the impact Edison systems have had on the environment and develop and implement an environmental response strategy to minimize environmental impacts due to SCE equipment	Implement an environmental response strategy and refine as necessary to meet ongoing environmental threat	Environmental Specialist
		Document instances of potential environmental impacts attributed to SCE facilities as they are reported and communicated to OSC	Environmental Specialist
External Engagement	Ensure alignment of damage assessment and restoration priorities with external stakeholders	Contact county EOCs and emergency response organizations and coordinate the deployment of SCE representatives where appropriate	LNO
		Coordinate with external response structures to expedite or waive permitting requirements. (CARB, Crane Permits, etc.)	LNO
		Communicate high-level restoration strategies and customer impacts	LNO
		Provide county/city restoration needs back to OSC for possible prioritization	LNO
IT	Conduct damage assessments of affected SCE information technology systems (OMS, EMS, radios, etc.) with a focus on mission critical systems	Assess damage to all systems that support mission critical facilities/operations (e.g. contact centers, GCC, DOCs, Switching Centers, GOC, ESOC, etc.)	IT Tech Spec
		Develop a long-term IT restoration strategy, aligning restoration priorities across the company	IT Tech Spec
		Develop restoration strategy for critical applications	IT Tech Spec
Logistics and Transportation	Ensure the ability to coordinate the reception, tracking, and transportation of resources and personnel throughout the impacted area	Identify operational resource coordination points (e.g., laydown yards, PODs, etc.)	LSC
		Assess the availability of fuel resources and coordinate the provision of fuel for SCE and contractor vehicles, equipment, and aircraft	LSC
		Coordinate with the OSC to assess the availability of contract resources to meet staffing limitations for all affected OUs	PSC/RESL
		Coordinate with the Air Operations Branch Director to allocate air operations resources to support aerial surveys and the transportation of mission critical personnel	OSC
		Assess lodging and meals availability	LSC

Phase 2B Objectives		Critical Tasks	Owner *
		Reconcile ongoing emergency repairs with affected locations and provide resource needs and restoration updates	OSC
Public and Employee Messaging	Develop and implement an engagement strategy for the media, customers, employees, and external stakeholders that provides situational awareness on SCE activity, outlines safety messaging, manages expectations, and clarifies operational constraints	Coordinate the production and distribution of employee notifications outlining safety information and providing guidance on initial actions	SOF
		Develop and coordinate key messaging with County PIOs	PIO
		Coordinate with the Business Customer Division (BCD) to implement macro messaging for all districts without accurate power restoration times	OSC
		Coordinate with CCC Branch Director to ensure the use of the Interactive Voice Response (IVR) system at the Customer Contact Centers for disseminating critical information to customers	OSC
		Establish regular messaging schedule for engagement with external organizations (e.g., media, social media, press releases, regulatory)	PIO

** Color codes in the "Owner" column align to the color of vests worn by EOC personnel*

PHASE 2C: SUSTAINED RESPONSE (>24 HOURS POST-INCIDENT)

Phase 2C focuses on maintaining operational control, prioritizing response operations, and finalizing restoration efforts throughout the remainder of response operations.

Trigger

The Incident Commander has determined that a common operating picture has been established, a reoccurring response cycle is maintained, and requested resources have begun being integrated into the response operation.

End State Condition

- Triggers for transitioning to a recovery taskforce have been identified and met
- Emergency response operations shift from stabilization of SCE's infrastructure to restoration of normal services
- Response teams have been demobilized
- The recovery taskforce is coordinating response activity, with operational control managed at the districts
- SCE is no longer at risk for continued disruptions due to the incident

Objectives and Critical Tasks

Phase 2C Objectives		Critical Tasks	Owner *
Health and Safety	Ensure the safety and wellbeing of all SCE personnel and protect the public from hazards associated with SCE assets and activities	Monitor potential health and safety risks where SCE personnel are operating	SOF
		Identify potential health and safety risks (to include, but not limited to wires down) associated with SCE facilities and notify SCE personnel, the public, and local authorities where appropriate	SOF
		Consolidate reports of electrical hazards throughout the impacted area and appropriately vet and prioritize hazard messaging	SOF/PIO
		Coordinate with the SOF to implement a 16/8 rotation to support safe operational activity	OSC
		Monitor for "fatigue" for long-term 16/8 rotations	SOF
T&D, Generation, and EPM	Continue to revise and execute the strategy for the safe and efficient restoration of electric power while considering standing priorities (public safety, critical facilities, medical baseline customers, etc.)	Stay informed of restoration strategy and support efforts through allocation and assignment of resources	OSC
		Ensure the integration of Mutual Assistance and other non-standard response personnel into the operation	OSC
		Ensure resources are identified and assigned to clear electrical hazards with imminent danger as reported by a public agency and/or the public	OSC
		Evaluate ability to establish global ERTs or transition from macro-messaging	OSC
		Develop a demobilization plan, defining the roles and responsibilities of a recovery taskforce to continue operational activity after the response team demobilizes	PSC
IT	Ensure the restoration of affected SCE information technology systems (OMS, EMS, radios, etc.) with a focus on mission critical systems	Ensure the execution of the IT restoration strategy, aligning restoration priorities across the company	OSC
Public	Ensure communications is consistent with coordinated messaging and accurately	Ensure updated safety notifications are distributed throughout the incident to inform SCE personnel of existing or evolving risks	SOF

** Color codes in the "Owner" column align to the color of vests worn by EOC personnel*

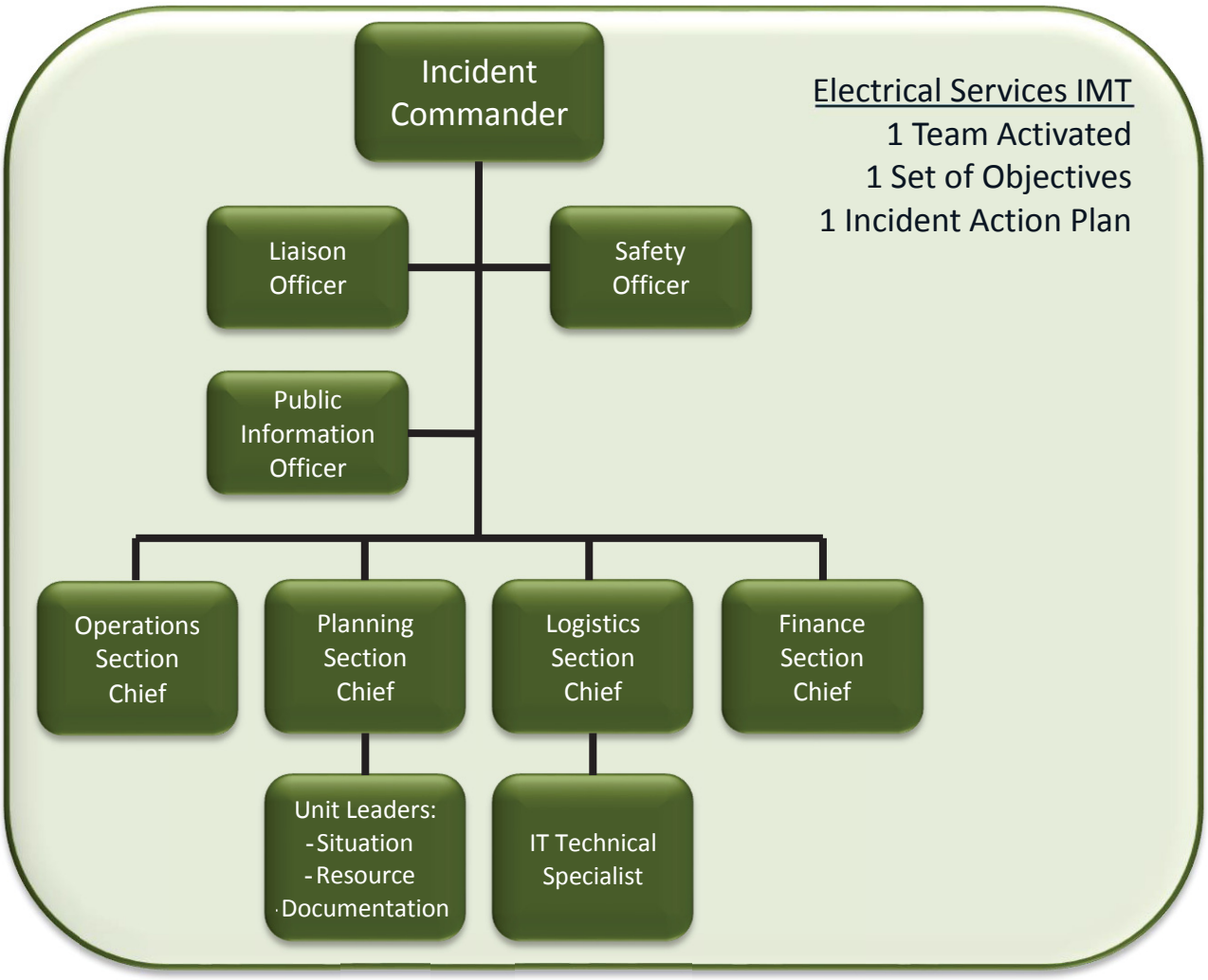
Phase 2C Objectives		Critical Tasks	Owner *
	depicts SCE's restoration strategy	Transition out of macro messaging by developing accurate power restoration times and coordinating with the Business Customer Division (BCD) to close out existing macro messages	OSC

APPENDIX A: RECOMMENDED ORGANIZATIONAL STRUCTURES

There are three recommended structure to organize incident response teams around when responding to a Storm incident, depending on number, size and complexity of incidents involved.

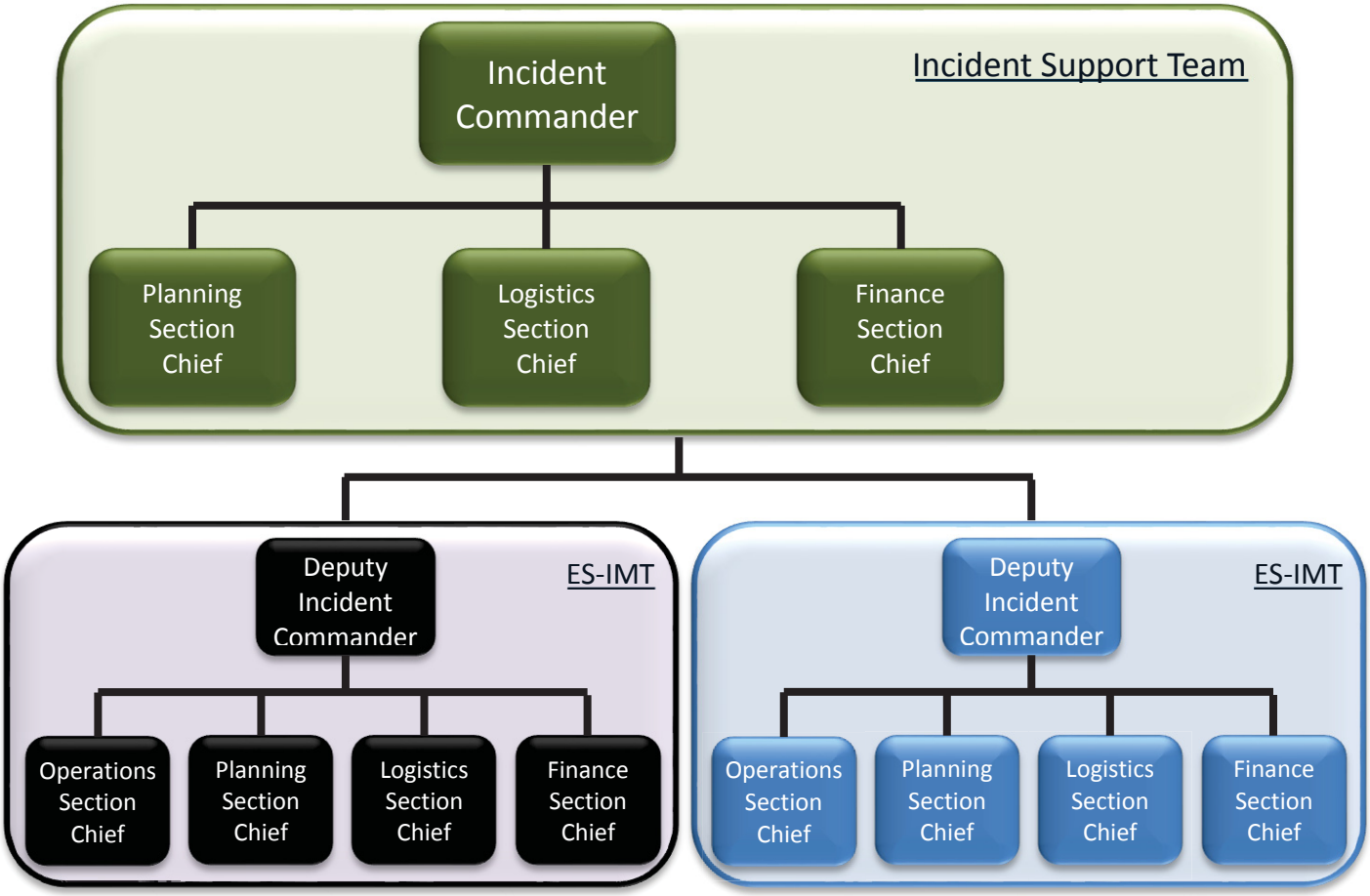
Electrical Services Incident Management Team (ES-IMT)

The following diagram outlines how a single Electrical Services Incident Management Team (ES-IMT) is generally organized to respond to a small-scale or non-complex incident.



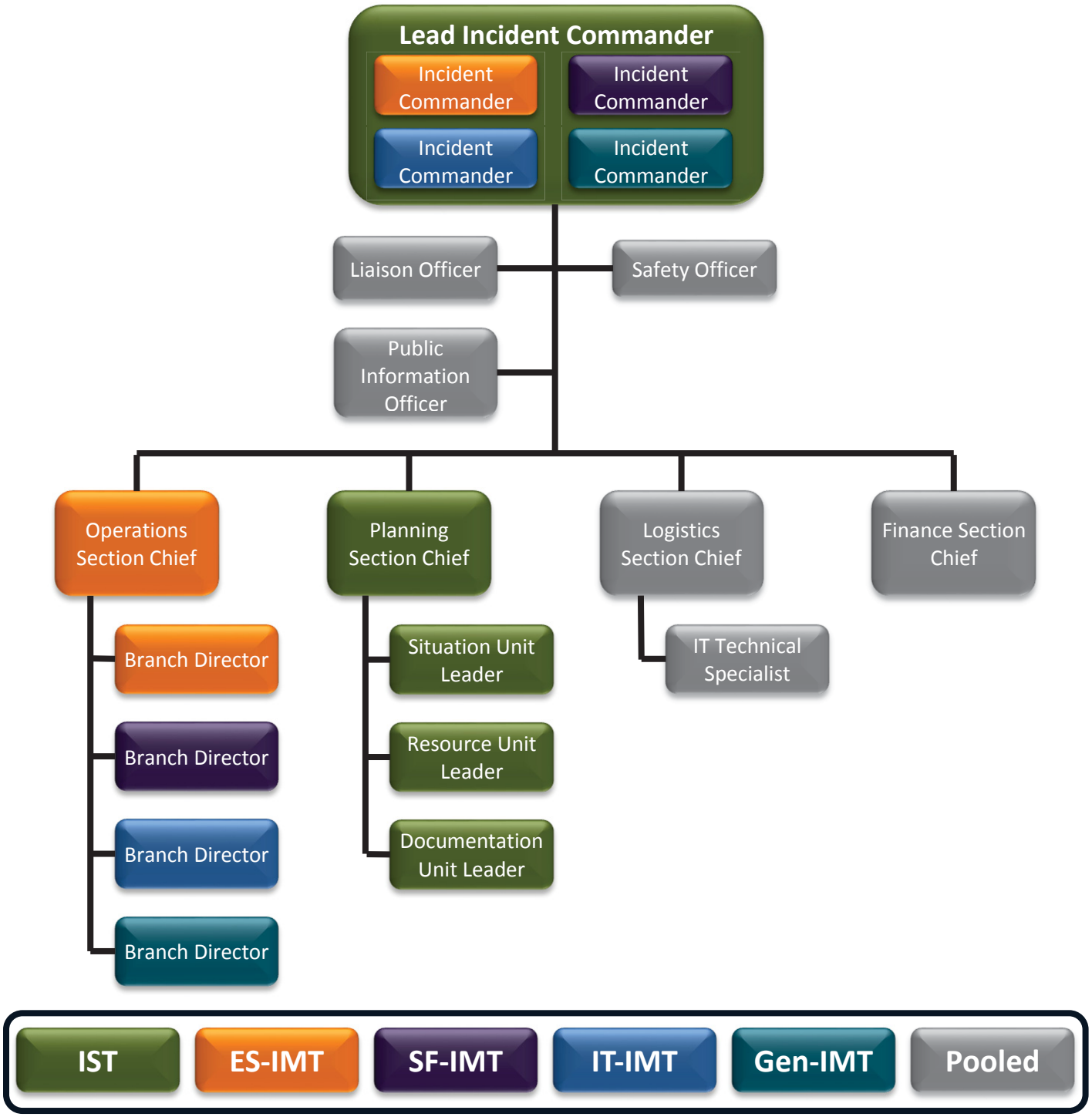
Incident Support Team (IST)

The following diagram outlines how multiple Electrical Services Incident Management Teams (ES-IMT) coordinate when activated to respond to multiple, unique incidents simultaneously.



Unified Command (UC)

During large or complex storm incidents that involve multiple organizations within Southern California Edison, the Incident Commander (IC) may decide, with input from the Business Resiliency Duty Manager (BRDM), to use a Unified Command organizational structure. The integrated Unified Command will produce a single set of incident objectives, and a single Incident Action Plan (IAP) each operational period.



APPENDIX B: RESTORATION PRIORITIES

Due to the wide range and nature of incidents, SCE has identified guidelines to restore the most critical and the largest numbers of customers as quickly as possible while prioritizing public health and safety.

Public Safety

With safety of the public and employees as our first priority, then the restoration effort needs to be done in the most efficient manner while maintaining the reputation and property of the company.

The prioritization of activities informs the strategy for a restoration of the SCE electric system and customer service:

- If there is a total or partial system shutdown and subsequent restoration, SCE's first priority is to deliver off-site power for bulk power generation start-up. During the process of routing power some customer load may be restored while energizing bulk power transformers for the coordination of protective relaying equipment, for voltage control, and while picking up station light and power.
    - Startup power for bulk power generation
    - Switching Centers station light and power (if not carried by the emergency generator)
    - Offsite power to Diablo and Palo Verde Nuclear Generating Stations if required
    - Bulk Power Substations station light and power (if not carried by the emergency generator)
    - Customer load
- If the total system is not shut down:
    - Protect public safety and ensure that utilities and public agencies have electricity
    - Repair any facilities that have sustained damage
    - Repair transmission lines (66 to 500 kV)
    - Ensure substations and circuits are energized
    - Repair distribution lines (4 to 66 kV) to restore/maintain service to large numbers of customers
    - Repair tap lines to restore service to smaller numbers of customers
    - Repair individual customer problems

Some examples of the Restoration Strategy & Priority Order (high to low) are:

- Clear electrical hazard with imminent danger as reported by a public agency
- Clear electrical hazard with imminent danger as reported by the public
- Circuit interruptions

- Unclear electrical hazard with unclear imminent danger as reported by a public agency
- Unclear electrical hazard with unclear imminent danger as reported by the public
- Area Outs
- Single No Lights
- Single Part Lights

High Priority Customers

In order to identify customers that provide essential public service as well as critical care customers who have been pre-identified to be imperative to wider customer safety, SCE has developed a method which prioritizes outages in the system based the combination of several factors:

- Pre-identified criticality (hospitals, critical care facilities, police, fire, utilities, food, community support, etc.)
- Length of time without service addresses the outages by criticality further to be addressed as soon as the system has been repaired to support them
- Number of customers affected

First Responders

A high volume of high priority issues typically occurs at the beginning of a significant incident and often continues throughout the incident. SCE responds to these issues in the order of pre-determined priorities. Personnel are on property throughout SCE territory and on duty 24 hours a day, 365 days a year to respond to these issues. There are qualified personnel throughout SCE who may be called in for additional support.

An appropriate number of resources should be reserved to address these critical responses throughout the restoration.

Split Jurisdictions

Substation System Operators manage multiple systems within geographic jurisdictions. In an emergency, it may become necessary for an operator to maintain the entire system while concentrating on a particular sub-system. In this case, the operator may assign a portion of the system to another operator. This frees up the operator to concentrate on the area of elevated activity as well as providing reasonable service to the customers not affected by the incident.

APPENDIX C: RESTORATION STRATEGIES

SCE may have more than one incident concurrently. Therefore, they may employ different restoration strategies based on the size, scope, and intensity of each incident. In smaller, more isolated incidents, SCE typically employs the standard order-based strategy that it uses under routine outage circumstances. As described below, this strategy is not effective in larger incidents where there is an overwhelming volume of orders. Thus, in larger incidents, SCE moves to an area-based strategy where repair priorities are assigned by areas and circuits. This is a tactical decision made during the planning process for a given operational period and documented in the IAP. The two strategy types, order- and area-based can be used together within an event as needed.

Order-Based Strategy

Order based restoration is most frequently applied during less complex incidents where the number of trouble orders is within the capacity of the available workforce to efficiently process and complete.

Order based strategies may also be useful during less complex, distributed incidents where there is not a significant amount of physical damage experienced by the system (e.g., a heat storm). It is also useful before and concurrently with the initial damage assessment before the extent of the damage has been discerned.

The order based restoration strategy is used when there are a relatively small number of trouble orders. Under this strategy, day-to-day restoration processes predict, locate, and repair faulty equipment or line sections. OMS facilitates prioritization of trouble orders based on number of outages and availability of responders.

Order based restoration is very effective when the instances of damage are not substantial and when the number of trouble orders allows efficient work package development and prioritization. The effectiveness of this type of restoration strategy may be diluted when the physical damage is substantial because the time necessary to restore a specific trouble order is not easily incorporated into the analysis, which prioritizes and assigns work. Consequently, during significant incidents where there is widespread damage resulting in a large number of trouble orders with physical damage, an area based restoration strategy may be more appropriate to optimize the restoration effort.

Area-Based Strategy

Area based restoration strategy is used when the number of orders exceeds the ability to assign work on an individual order basis. Work is assigned to crews by areas or circuits and prioritized at the area or circuit level rather than evaluating individual orders. Areas and circuits are prioritized based on considerations such as customer density and critical restoration issues. Crews are typically expected to complete all the work in their assigned area before moving on to the next. The area based restoration strategy focuses on decentralizing the management of significant restoration work to improve productivity while simultaneously addressing high priority issues.

This type of restoration strategy capitalizes on directing multiple resource types, including: damage assessors, first responders, company line crews, contract line crews, and mutual assistance resources under one authority; thereby, optimizing their efforts.

APPENDIX D: ESSENTIAL ELEMENTS OF INFORMATION (EEI)

EEIs are standard information items that incident managers need in order to make timely and informed decisions. EEIs also provide context and contribute to analysis.

- Potential hazards that impact the safety and health of SCE personnel and the public
- Updated common operating picture based on modeled data and the accumulation of 'ground truth' information
- Facility and equipment assessments and operational impacts to SCE
    - Power Delivery
        - T&D (source, GCC and DOCs)
            - Status of the bulk power system
            - Status of the sub transmission system
            - Status of the distribution system
        - Power Supply (source: GOC)
            - Status of SCE generation assets
            - Status of connected generation assets
    - Communications (source: Telecom Control Center)
        - Operational
            - Status of EMS & fiber / microwave connections
            - Status of 900 MHz Radio Network
        - Administrative
            - Status of internet connectivity
            - Status of VOIP/PAX phone network
            - Status of Verizon cell phone network
    - IT Applications (source: GSOC)
        - Status of applications supporting critical processes
    - Facilities
        - Status of facilities housing critical and essential processes
- Status of mutual assistance requests
- Interdependencies between SCE, other utilities (water, gas, and electric), government agencies, and critical infrastructure
- Limitations on transportation due to flooding, roadway damage, or debris
- SCE staff supporting external agencies such as JICs, EOCs, and other utilities

APPENDIX E: SCE FIRE PREVENTION PLAN

Southern California Edison

Fire Prevention Plan

Version 1.0

Prepared by:
Business Resiliency
October 30, 2018

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PURPOSE

This ***Southern California Edison Fire Prevention Plan*** describes measures implemented by Southern California Edison (SCE or Company) to mitigate the threat of overhead power-line fire ignitions and/or maintenance related ignitions within its service territory. It applies to internal organizations and contractors with responsibility for the operation, design, construction, inspection or maintenance of SCE controlled assets and/or structures. Adherence to the following guidelines is essential and is supported by applicable SCE policies, practices, and procedures to further reduce the probability of power-line and/or maintenance caused ignitions.

For this 2018 compliance update to the California Public Utilities Commission (CPUC), the Fire Prevention Plan includes additional mitigations and programs that SCE is implementing to comprehensively address the increasing threat of wildfires. This includes sections on engineering and design, system hardening and infrastructure programs, operations, inspection and maintenance, vegetation management, situational awareness, and education and outreach.

OBJECTIVES

The objectives of this Fire Prevention Plan are to describe in detail efforts SCE is taking to mitigate the threat of power-line fire ignitions with its comprehensive programs, policies and procedures. This plan complies with the following existing CPUC decisions and codes for Fire Prevention Plans:

- ***CPUC Decision 12-01-032*** required SCE to prepare a fire-prevention plan to identify 3-second wind gusts in real time and address situations where all three of the following conditions occur simultaneously:
  - 3-second wind gusts exceeding the structural or mechanical design standards for the affected overhead power-line facilities; *and*
  - 3-second wind gusts occur during a period of Red Flag Warning as defined by the National Weather Service; *and*
  - Affected facilities are located within a high fire-threat area[1] as defined by the CPUC

- ***CPUC Decision 14-05-020*** modified D.12-01-32 and eliminated the requirement to identify 3-second wind gusts in real time if a utility does not deploy fire-prevention measures that rely on real time observations of wind gusts. D.14-05-020 also required SCE to identify the parts of its service territory where it is reasonably foreseeable that the following conditions may occur simultaneously:
  - 3-second wind gusts exceed the structural or mechanical design standards for the affected overhead power-line facilities; *and*
  - 3-second gusts occur during a Red Flag Warning, *and*
  - Affected facilities are in a high fire-threat area

  In making this determination, the utility shall use a minimum probability of 3% over a 50-year period that 3-second wind gusts which exceed the design standards for the affected facilities will occur during a Red Flag Warning in a high fire-threat area.

- ***CPUC Code, Division 4.1. Provisions Applicable to Privately Owned and Publicly Owned Public Utilities [8301-8387]*** was instituted in 2016, requiring all investor owned utilities to construct, maintain, and operate their electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by such facilities. It also requires the investor owned utilities to annually prepare a wildfire mitigation plan which includes objectives of the plan, the persons responsible for executing the plan, metrics for measuring plan effectiveness, auditing of the plan and corrective actions for plan improvement.

[1] "High fire-threat area" in this context refers to the terminology used in CPUC's Fire-Threat Map for Tier 2 and Tier 3 areas of High Fire Threat District.

- ***Resolution ESRB-8. Resolution Extending De-Energization Reasonableness, Notification, Mitigation and Reporting Requirements in Decision 12-04-024 to All Electric Investor Owned Utilities,*** extended the de-energization reasonableness, public notification, mitigation and reporting requirements in Decision (D). 12-04-024 to all investor owned utilities and adds new requirements. It also places requirements on electric utilities to make feasible and appropriate attempts to notify customers of a de-energization event prior to performing de-energization.

ENGINEERING AND DESIGN

For over a century, SCE has designed its electrical system with the primary goal of providing safe and reliable power. This design includes many decades of engineering experience and the adoption of new technologies over time. SCE design practices continue to advance with newer safety and reliability technologies, as well as technologies that facilitate the integration of renewable generation distributed energy resources and transportation electrification. Importantly, SCE understands the state of the "new normal" and the challenges climate change brings with greater intensity and frequency of fire danger, which is driving the need for further evolution of the grid—particularly in SCE's High Fire Risk Areas (HFRA)[2] to prevent, mitigate, and withstand the immense wildfire threat that exists in California.

Foundationally, overhead electric and communication lines and structures comprising SCE's bulk, sub transmission and distribution system are designed to meet or surpass the requirements set forth in the CPUC's General Order (GO) 95. Where necessary and appropriate, based either on a predictive model or study, material strengths of structures may be increased to exceed GO 95 requirements. For example, supplemental design criteria are applied to overhead lines throughout the service territory, including HFRAs known to experience high winds. These criteria are published in Transmission & Distribution's (T&D) Pole Loading Manual. T&D design and construction manuals also include standards for Avian Safe construction and encompass special heavy loading areas above 5,000 feet elevation in support of short- and long-term efforts to prevent power-line ignitions and support system reliability.

SCE is also pursuing additional engineering solutions to help mitigate the potential of wildfires caused by operation of the electric grid. Because the delivery of electricity to SCE's customers entails the transfer of energy on power lines and equipment, the interruption of these energy deliveries, due to external factors (e.g., vehicles hitting utility poles, high winds causing tree limbs and palm fronds to land on power lines, animals or balloons bridging the lines, and other external factors), can result in a large amount of energy being dissipated to flammable debris or vegetation (e.g., dry grassy areas). Because of the higher risk of fire ignition from distribution power lines in the wildland-urban interface, many of these solutions are targeted primarily to the distribution system with some also being applicable to higher voltage transmission lines.

AUTOMATION AND FAULT ISOLATION

Automating distribution systems is an industry best practice, especially when it comes to applying the concept of rapid Fault Location, Isolation, and Service Restoration (FLISR) primarily for safety and reliability purposes. For this reason, SCE will seek to apply these and similar type of automation technology where ever feasible on newer and updated construction. For example, SCE now uses line-mounted remote fault indicators and automated switching. These technologies allow SCE's first responders to more quickly and efficiently isolate the cause of outages and restore service to

[2] SCE had previously identified locations in its service area as high fire risk prior to the release of the most recent CPUC High Fire Threat District maps with Tier 2 and Tier 3 designation (*see* Decision 17-12-024). To date, combining with the CPUC Tier 2 and Tier 3 designations (plus a small buffer), SCE's existing high fire risk areas plus the Tier 2 and Tier 3 locations make up approximately 35 percent of the total SCE service area. SCE will continue to evaluate its HFRAs outside of the Tier 2 and Tier 3 designation and to determine continuing inclusion or exclusion based on objective fire risk criteria.

customers. These technologies also are beneficial in reducing the potential for the electric grid to be a source of wildfire ignition.

SCE is also evaluating the use of recently developed and more advanced automatic circuit switches, high-speed remote fault sensors, and intelligent current limiting fuses that offer greater speed and flexibility regarding reclosing intervals, protection coordination, and the amount of energy released in the fault clearing process.[3] If the fault is permanent, the more advanced automatic switches have sensors that block the switches from closing back into the fault, effectively reducing the amount of fault current and potential arcing associated with the testing process. Additional evaluation continues on pulse reclosers, which limit the testing current to around 5% of standard reclosers, significantly reducing the stress on distribution equipment and connections when reclosing into a fault condition, thereby reducing equipment failures that can cause ignitions. If successful, SCE anticipates an expanded program to implement these newer technologies during Red Flag Warning events in the HRFAs to further mitigate wildfire risk.

System Reconfiguration

SCE is investigating and actively developing plans to reconfigure its electric distribution lines in certain HRFAs that occasionally experience faults that are difficult to detect. By installing additional isolation switches such as remote-controlled automatic reclosers, system operators can remotely isolate faulted line segments and transfer un-faulted segments to other nearby circuits. These system reconfiguration changes will be made in conjunction with other proposed fire mitigations, such as upgrading or installing new protection systems, system hardening involving circuit rebuild such as replacement of bare conductors with covered conductors and installation of fire-resistant poles. These designs will add protective equipment to further mitigate wildfire risk as well as keep the lights on for as many customers as possible.

Refinement of Protection Device Settings

As with any new design, operational practice, or protection scheme, SCE will continue to refine and advance device settings and protection schemes to further reduce ignition risks while maintaining reliability. With the implementation of high-speed fault detection and isolation using additional fast-acting current limiting fuses and fast-curve settings on fault interrupting devices such as remote automatic reclosers and circuit breakers, SCE recognizes the attendant tradeoffs that may occur when changing relay settings. These tradeoffs may result in some impact to service reliability as faults on certain line sections will cause a greater number of customers to experience interruptions. SCE will carefully evaluate each distribution circuit and weigh tradeoffs between reduced fire risk and increased momentary and nuisance interruptions.

[3] In an electric power system, a fault is generally defined as an abnormal electric current. There are different types of faults (e.g., a short circuit occurs when current bypasses the normal load, an open-circuit occurs when utility equipment fails without grounding or shorting, and a ground fault occurs when there is a breach of electrical insulation and current goes to ground), and industry "fault clearing" processes include the operation of a circuit interrupter such as circuit breaker or remote automatic recloser. The recloser would have the ability to "reclose," or test whether the fault remains for intermittent fault conditions such as tree branches or metallic balloons that got blow into the lines.

Wire Down Detection

Over the past several years, SCE has carefully analyzed existing distribution circuits to ensure that protective relays can detect faults on all distribution line sections. New or additional relays, circuit breakers, or fuses have been installed, where needed, to meet this objective. Despite these proactive measures, distribution lines, like all other electric utilities, occasionally experience faults where the resistance (impedance) to ground is too high for relays to detect. Although there is no commonly available device or proven technology that can detect all faults under all conditions, SCE is developing sophisticated algorithms to identify voltage patterns and anomalies using smart meter voltage data to detect, alarm, and possibly trigger protection devices to isolate energized down wires that would otherwise be difficult to detect using other means of existing protective relaying technology. This has the potential to not only reduce wildfire risk in HFRAs, but also reduce live wire exposure to the public.

SYSTEM HARDENING AND INFRASTRUCTURE PROGRAMS

Driven by the effects of the recent larger and more devastating fires, SCE is looking for opportunities to refocus and accelerate existing programs and enhance current efforts, so the risk of fire ignitions can be further reduced and newly installed equipment can better survive fire events. The immediate goal is to upgrade the system to further prevent fire ignitions by upgrading poles and installing covered conductors in HFRAs. SCE is beginning to replace certain conventional devices on the system, while having served the industry very well for many decades, could present an increased likelihood of ignition due to the state of the new normal with abundance of dry vegetation in the future with newer technologies to further reduce the likelihood of ignitions. Other hardening options include fast-acting fuses (current limiting), advanced lighting arresters, and fire-resistant poles and cross-arms. SCE will also evaluate potential changes to design and construction standards to reduce the possibility of faults, the amount of energy that is produced by faults or the potential for electric lines and devices to encounter faults.

COVERED CONDUCTOR

SCE has begun installing covered conductor for wildfire risk mitigation in certain HFRAs in response to the unprecedented damage caused by the 2017 wildfires and the "new normal" of year-round increased intensity and frequency of wildfire risk. Over time, the industry has continuously improved the design and application of covered conductor, moving from a single layer of insulating material to a robust three-layer design with improved materials. The three-layer design and material advancements improved the performance and extended the life of covered conductor. Due to these advancements in product quality, coupled with a significant reduction in ignition risk and considerable improvement in overall reliability, SCE has begun replacing bare conductors with covered conductor on the most vulnerable circuits in HFRAs.

OVERHEAD TRANSFORMERS, FUSES, AND EQUIPMENT

SCE is actively moving from industry-standard mineral oil-immersed overhead distribution transformer units (such as those installed along roadways to serve individual businesses and homes) to transformers that are insulated using a less flammable and more thermally stable dielectric fluid (such as FR3). SCE begun deploying distribution transformers with the ester-based insulating fluids in April 2018. These transformers with ester-based insulating fluid will have a much higher flash point compared with conventional mineral oil-immersed units and will further reduce the possibility of transformer failures becoming a wildfire ignition source.

SCE is also installing current limiting, non-expulsion type fuses[4] on circuits in HFRAs to enhance protection (safety/reliability) capabilities, reduce the outage impacts of a fault, and reduce the risk of the utility equipment becoming an ignition source. These fuses not only react more quickly than standard fuses, they reduce the current magnitude as well, curtailing the energy delivered to the fault location by up to 25 times. Importantly, such fuses are designed to contain the spent fusing material and hot gases within the unit rather than expelling them, which not only helps to achieve the

[4] The commonly used fuses in the electric power industry is of the expulsion type that takes advantage of the rapid generation of vapor blast to de-ionizes the arc and prevent arc re-ignition.

aforementioned benefits, it led to the fuses being classified as CalFire exempt[5]. Lastly, SCE is rolling out new non-expulsion type surge arresters (also CalFire exempt). Surge arresters are devices that conduct the energy associated with over voltage transients (e.g. lightning strikes to power lines) to ground rather than be absorbed into utility equipment. Together, these overhead equipment strategies are not only effective at minimizing wildfire risk, but also at improving circuit reliability and resiliency.

UNDERGROUNDING

Undergrounding overhead lines, which typically has been used to beautify heavily traveled streets, is an option to mitigate wildfire risk in HFRAs. However, while underground systems can help reduce the risk of wildfires and increase reliability during high winds and storms, they also take longer and cost much more to construct, maintain and repair – particularly in mountainous and rocky terrain. In many cases, undergrounding is not an option due to local geology (bedrock, granite, etc.). Further, placing lines underground may be less efficient than other proposed solutions, since underground lines are difficult to inspect, may have shorter life expectancy than overhead conductors, and often have extended duration restoration times when there are problems. Underground systems can cost up to 10 times more than overhead systems – roughly $3 million per mile – and could require an investment of thousands of dollars by each customer to convert their individual connections to underground to truly eliminate overhead wires. Because of these drawbacks, SCE is prioritizing more cost effective and efficient approaches – for example, covered conductor and fire-resistant poles. SCE will, however, work with local communities to pursue undergrounding in the HFRAs using the existing Tariff Rule 20 where SCE determines this is the most appropriate means to mitigate wildfire risk.

POLE LOADING PROGRAM

In January 2014, SCE initiated a Pole Loading Program (PLP). The Program's goal is to assess the structural loading capabilities of the 1.4 million poles in its service territory to meet current design standards by 2021 and to continue addressing pole overloading issues by 2025. Although the CPUC requires a design wind pressure of 6 pounds per square foot (with 0.5 inches of radial ice on the conductor) or 8 pounds per square foot (no ice) (or wind speeds of approximately 48 mph or 56 mph, respectively), SCE adopted higher wind loading standards of 12, 18, and 24 pounds per square foot (wind speeds of approximately 68, 84, and 96 mph, respectively) in addition to the standards for 6 and 8 pounds per square foot. This is based on meteorological studies in areas of the SCE territory with higher wind velocities. The specific wind loading criteria that SCE applies is based on line locations and potential wind speeds. SCE will continue assessing pole conditions and replacing poles where applicable, based on the higher wind loading criteria outlined above. All poles that require replacement are prioritized based on their safety factor and on whether the pole is located in an HFRA.

[5] See current CalFire Power Line Fire Prevention Field Guide (2008), Section 6 – Exemptions. In this context the exemption provides waiver of the vegetation clearance requirements in California Code of Regulation Title 14, Article 4, and Section 1255.

RE-CONDUCTORING PROGRAM

SCE has developed a risk-informed process to identify and mitigate risks associated with overhead systems through the Overhead Conductor Program (OCP). The OCP replaces certain overhead conductors with newer conductors and identifies locations to install additional fusing. To determine priorities, SCE evaluates each individual circuit, using its risk-based PRISM framework, where each circuit receives a score for safety, reliability, environmental, and customer-cost impacts. Once SCE assigns the scores, internal subject-matter experts (SMEs) identify appropriate mitigation to reduce the frequency or consequences of a risk event in order to prioritize the work, which could include replacement with covered conductors. In short, SCE will use the OCP to reduce some of the key wildfire risks associated with overhead conductors in HFRAs, which includes energized wire down.

OPERATIONS

Grid Operations is responsible for monitoring and operating SCE's electric system. During significant events, Grid Control Center personnel act as SCE's official representatives in matters concerning the operation of the system. Grid Operations is also responsible for applying System Operating Bulletins which encompass operating protocols, remedial actions, communication and notification protocols, ratings and limits of lines and equipment, and system protection schemes. Qualified employees (e.g., Troublemen, Senior Patrolmen, Foremen, or Field Supervisors) may contact Grid Operations at any time to request a line or line segment be temporarily de-energized or place sectionalizing equipment into "non-automatic" settings to promote public safety and system reliability. To reduce power-line ignitions during extreme weather conditions, overhead lines and line sections are subject to operating restrictions described in SCE's System Operating Bulletin 322 and are summarized below.

RED FLAG WARNING PROGRAM

This Fire Prevention Plan is compliant with D.14-05-020 in that it is applied during Red Flag Warning conditions (regardless of measured wind speed), requires specific actions to be taken (whether or not the Red Flag Warning occurs in a high fire area and whether or not wind speeds in the area may exceed design criteria for the affected overhead facilities), and does not require or depend on real-time wind speed measurements or monitoring. When SCE's operating organizations receive notice that a Red Flag Warning has been issued in their operating areas, zones and/or Districts they adhere to the following:

- "Red Flag Fire Patrol" magnetic signs are displayed on designated vehicles
- When working in HFRA during a Red Flag Warning, all work (both emergency and non-emergency) should only be performed when meeting the following requirements:
  - Under the direct observation of the crew foreman or site lead, and
  - When the crew can maintain adequate communications (900 MHz, cellular, satellite phone, etc.), and
  - The crew has fire suppression equipment deployed and in the immediate area of the work being performed that would facilitate an immediate response to an ignition (shovels, water backpack, ABC fire extinguisher), and
  - Local weather conditions, terrain, and surrounding vegetation would permit the crew to extinguish a fire resulting from the work being performed.
- The opening of remote-controlled air break pole switches (e.g., Remote Transmission Switches, Remote Controlled Switches), when possible, are (when possible) performed under visual observation to watch for abnormalities.
- Crews remain on alert for fires or possible fires while working in or passing through fire hazard areas
- Fires are accurately reported to the appropriate switching center or control center as soon as possible. Reporting of fires or potential fires will be handled as follows:
  - Transmission and Distribution employees will notify the local switching center
  - Generation employees will notify the Dispatch Center

- Information Technology employees will notify the Telecommunications Control Center
- Corporate Real Estate employees will notify the Edison Security Operations Center
- Generation Dispatch, Telecommunication Control Center, and ESOC will log all reported fires and or potential fires and will notify the Watch Office.

Further, where hot work (e.g., arc welding/cadwelding, burning, grinding, brazing, thawing pipes, etc.) is performed, each work site develops a site-specific Hot Work Plan. The Hot Work Plan identifies hazards and control measures associated with Hot Work Activities. The plan is maintained at each site and made available for employees to review at any time.

Exception:
If safe to do so, SCE will make an exception to the previously mentioned practices for work performed within an HFRA but confined to an area devoid of flammable materials (e.g., parking lot, commercial area, agricultural lands, bare ground, work indoors etc.). Work confined to the location types above that cannot ignite a fire may be performed within a High Fire Area without restriction.

Operation of Distribution Voltage Lines

System Operating Bulletin (SOB) 322 is used to standardize the operation of distribution voltage lines traversing HFRAs. This policy imposes operating restrictions on designated overhead distribution lines to reduce the risk of wildfires when the National Weather Service or the Riverside Fire Weather Office (RFWO) issues a Red Flag Warning. Specifically, this policy requires all circuit breakers and reclosers on circuits traversing through HFRAs be made non-automatic until the Red Flag Warning expires. In the event protective relays on these circuit breakers operate to interrupt the flow of electricity, the line is not re-energized until the line is patrolled and deemed safe. SOB 322 also specifies which SCE personnel are responsible for triggering and releasing these restrictions—this proactive approach minimizes any potential delays in responding to events and ensures SCE staff are fully aware of their associated responsibilities. Blocking the reclosing feature of these relays can be set remotely on nearly all overhead reclosing devices throughout the service territory. The remaining switches will be upgraded as work is performed in the area. This automated functionality is an important feature that allows system operators located in centralized control facilities to quickly change the reclosing settings (automatic versus blocked) without the need to send crews to actual field locations. SCE conducts annual reviews of SOB 322 to proactively reevaluate its distribution circuits in HFRAs to ensure automatic switches can be blocked from reclosing in the event of a Red Flag Warning. SCE also reviews the few non-automated distribution circuits to ensure that the recloser is non-automatic and operating properly.

Operation of Sub-Transmission Voltage Lines

Like the operation of distribution lines, SCE also utilizes SOB 322 to standardize the operation of sub-transmission voltage lines traversing HFRAs. This policy imposes operating restrictions on designated overhead sub-transmission lines to reduce the risk of wildfires when the National Weather Service issues a Red Flag Warning. Specifically, this policy requires all circuit breakers feeding sub-transmission lines traversing fire hazard areas be made non-automatic until the Red Flag Warning expires. With very few exceptions, the operation of sub-transmission lines is similar to that of SCE's distribution lines noted above.

Extra Sensitive Settings for RARs and Circuit Breakers

SCE is currently building upon the successes achieved via automation and blocking breaker reclosing during Red Flag Warning events to use technology to increase the operating speed of protective relays on circuit breakers located on both distribution reclosers (commonly referred to as Remote-Controlled Automated Reclosers or RARs) and substation circuit breakers (CB). The objective of this program is to de-energize certain circuits, or segments thereof, more rapidly and to further minimize fault energy. The changes to RAR and CB settings would be temporary, as they would only be reset in HFRAs during Red Flag Warning events. Like the blocking of reclosers, RAR and CB settings would be adjusted remotely by SCE system operators. Importantly, SCE recognizes that there are safety/reliability tradeoffs that may occur when changing relay settings. To properly weigh the options, SCE will carefully evaluate each distribution circuit where changes are proposed to ensure the reduced fire hazard is commensurate with the potential for increased momentary and nuisance interruptions.

Aircraft Operations

SCE's Aircraft Operations department (Air Operations), which operates a fleet of helicopters and unmanned aerial vehicles (UAV), assists in the patrolling of transmission and distribution lines. Air Operations also provides as-needed, aerial surveillance (e.g., line/equipment inspections, burn scar analyses, debris flow analyses, etc.) following fire and weather-related storms. As conditions allow, Air Operations also assists in the transport of personnel and material to remote locations.

Public Safety Power-Shut Off Protocol and Notifications

SCE employs guidelines to be prepared to, and when appropriate, proactively de-energize circuits within HFRAs if data sources indicate that extreme local weather conditions pose an imminent and significant threat to public safety. The significant variability of weather and environmental conditions across the service territory, coupled with the effects of climate change and the State's severe drought/bark beetle issues, demand flexible de-energization guidelines that can be used under a variety of weather and physical circumstances and electrical system operating conditions. SCE's protocol, officially titled Public Safety Power Shut-Off (PSPS), consists of a set of criteria and guidelines with a wide variety of factors to be considered for appropriate use.

PSPS Task Force

SCE utilizes aspects of the National Incident Management System to manage its emergency and resiliency operations. In keeping with this methodology, execution of SCE's PSPS protocol is overseen by a specialized Task Force in the Incident Command Structure under the Operations Section Chief. The Task Force is composed of representatives from key internal stakeholders to manage the necessary public safety notifications to critical care, essential use, business customers and local governments potentially affected by its use. The Task Force is responsible for monitoring and considering conditions and relevant information before recommending the de-energization of any SCE circuit(s). Considerations may include, but are not limited to, the following:

- Red Flag Warnings issued by the National Weather Service for fire weather zones that contain SCE circuits in HFRAs;
- SCE meteorologists' assessments of local conditions, including wind speed (sustained and gust), humidity and temperature, fuel moisture, fuel loading and data from weather stations;
- Real-time situational awareness information from personnel positioned locally in HFRA identified as at risk of being subject to extreme weather conditions;
- Input from SCE Fire Management experts;
- Input from SCE's Vegetation Management as appropriate;
- Input regarding specific concerns from local and state fire authorities regarding the potential consequences of wildfires in select locations;
- Alternative ways to reroute power to affected areas;
- Awareness of mandatory or voluntary evacuation orders in place;
- Expected impact of de-energizing circuits on essential services;
- Other operational considerations to minimize potential wildfire ignitions, including the blocking of reclosers on the identified circuit(s);
- On-going fire activity throughout SCE territory and California;
- Progress of customer notification processes;
- Ongoing notifications to local governments and public officials; and
- Potential impacts to communities and customers

If a PSPS protocol is initiated, as conditions improve and circuit patrols have been performed in the field, SCE will begin to restore power when it is safe to do so. The order in which circuits are re-energized will depend on many factors such as damage, repair time, customer safety and well-being and affected essential services.

SCE is committed to providing timely notification to potentially impacted local governments, public safety agencies and customers prior to, during, and after a de-energization event, with special consideration of impacts to critical care, essential use, business customers and local governments and public safety agencies. SCE will strive to use the following guidelines for these notifications when feasible to do so.

- **4-7 days ahead** of forecasted extreme fire conditions in a HFRA, SCE meteorologists will begin predictive modeling to assess potential impacts to infrastructure that may require SCE to implement a PSPS. At this stage, the accuracy and granularity of forecasts will not enable SCE to identify potential impacted customers with a high level of confidence, so no notifications will be made.

- **3 days ahead** of the event, SCE meteorologists will continue to refine predictive models and will place Incident Management Teams on alert for activation at 2 days ahead of the event.

- **2 days ahead** of the event, predictive models begin to improve in accuracy and SCE activates its Incident Management Team. When weather conditions permit, SCE begins coordinating closely with local government and agencies (e.g., first responders) on a possible PSPS. A specialized Task Force will work to identify impacted circuits. SCE will begin its customer notifications process in the following order:

    1. Local Government & Public Safety Agencies
    2. Critical Care Customers
    3. Essential & Major Customers
    4. Business & Residential Customers

- **1 day ahead** of the event, if extreme fire conditions are imminent, the SCE meteorology team continues to refine its predictive models using more accurate forecasting capabilities to narrow down the affected circuits and customers. At this stage, SCE continues to work closely with local government and agencies on a possible power shutoff and will make additional notifications to impacted customers and local governments.

- **Power De-Energization**: If extreme fire conditions are validated by field resources, SCE may decide to de-energize impacted circuit(s) and will make every attempt to notify local government, public safety agencies and customers when this occurs. If SCE decides to de-energize circuit(s), SCE will continue to make additional customer and local government notifications throughout the event when important updates are available. If the forecasted conditions do not materialize, SCE will notify local government and customers that the event has been cancelled.

- **Power Restoration**: When extreme fire conditions subside to safe levels and safe conditions are validated by field resources, SCE will begin inspections and patrols of equipment to ensure there is no damage to infrastructure or other conditions that could present a public safety hazard when re-energizing circuits. Once field resources confirm that it is safe to re-energize the circuit, power will be restored to affected communities and local government and customers will be notified that the power has been turned back on.

INSPECTION AND MAINTENANCE

SCE recognizes the need to perform the right maintenance at the right time. In support of this approach, maintenance programs have been developed that enable the prioritization of work based on the condition of each facility or piece of equipment and its potential impact on safety and reliability, considering various factors. Prioritization factors include such things as the facility or equipment, loading, location (such as HFRAs), accessibility, local climate, and direct or potential impact on safety or reliability.

This industry-leading approach is commonly referred to as Reliability Centered Maintenance (RCM). For much of the system, SCE has combined this RCM approach with its knowledge of an asset's condition, obtained either through inspections or online equipment monitors, to determine how often to perform inspections or maintenance. This approach is commonly referred to as Condition-Based Maintenance (CBM). The combination of RCM and CBM is considered an industry best practice in electricity network maintenance. As a result, SCE prioritizes and allocates resources to higher value activities and deploys its resources more effectively and efficiently to remediate conditions that potentially pose higher risks. In other cases, timelines for completing maintenance tasks are dictated by CPUC regulation. Below is a summary of SCE's key inspection and maintenance programs.

DISTRIBUTION INSPECTION AND MAINTENANCE PROGRAM (DIMP)

The Distribution Inspection and Maintenance Program (DIMP) helps SCE ensure public and worker safety and regulatory compliance by completing scheduled Detailed Inspections and Grid Patrols, in conformity to CPUC GO 165 and performing Distribution Maintenance, as described in SCE standards and in accordance with GO 95, and 128, and good utility practice. The purpose of DIMP is to provide guidance to the field inspectors who perform detailed inspections and patrols.

TRANSMISSION INSPECTION AND MAINTENANCE PROGRAM (TIMP)

The Transmission Inspection and Maintenance Program (TIMP) helps SCE ensure public and worker safety and regulatory compliance by completing scheduled inspections of Transmission Assets, in conformity to the CPUC GO 165 and performing Transmission Maintenance, as described in SCE standards and in accordance with GO 95 and128, and good utility practice. The purpose of TIMP is to provide guidance to the field inspectors who perform detailed inspections and patrols. Any abnormal conditions identified through SCE's TIMP are repaired immediately if categorized as a Priority 1[6] condition. Priority 2 conditions are corrected within 6 or 12 months in Tier 3 and Tier 2 HFRAs respectively or within 36 months in other areas.

[6] A Priority 1 is a condition that is an immediate safety and/or reliability risk with high probability for significant impact. A Priority 2 is a condition that is a non-immediate safety and/or reliability risk that can be scheduled for repair. A Priority 3 is a condition that is an acceptable safety and/or reliability risk.

Overhead Detail Inspection (ODI) Program

The purpose of the overhead detail inspection (ODI) program is to visually evaluate SCE's overhead electrical distribution facilities with the intent to identify and document visually apparent discrepancies and accuracy of asset information and facility inventory mapping references for appropriate corrective action. Inspectors also identify and perform certain maintenance tasks during the course of a detailed inspection. Every item is evaluated based on the specifics of that condition and according to several factors. In accordance with SCE's DIMP, high priority conditions are repaired immediately (Priority 1). Lower priority items are put together into work packages, prioritized and scheduled for completion within 0 to 24 months (Priority 2); all Priority 2 work in HFRAs are intended to be limited to a maximum timeframe of 12 months. This program identifies approximately 19,000 Priority 1 and 25,000 Priority 2 maintenance items system wide per year, including approximately 2,800 Priority 1 and 6,500 Priority 2 maintenance items in HFRAs per year. Additionally, inspectors will perform minor maintenance tasks located within eight (8) feet of groundline while performing a detailed inspection.

Intrusive Pole Inspection (IPI) Program

The purpose of the intrusive pole inspection program is to evaluate SCE's wood pole system using both visual and internal examination of the poles to identify and document damage or decay requiring remediation. Inspectors also will apply a preservative to passing poles to reduce the likelihood of future decay when conditions warrant[7]. Intrusive inspections involve drilling into the pole's interior to identify and measure the extent of the internal decay. Inspectors may also perform a visual inspection on poles that are in the inspection grid but that are younger than 15 years old, or that have already had an intrusive inspection within the last 10 years to look for signs of obvious external damage. The inspector analyzes the integrity of the pole and classify it for repair or replacement, as necessary. Approximately 10,000 poles are identified for repair or replacement each year through this program.

Infrared Inspection Program

The Infrared Inspection Program, which SCE commenced beginning in 2017, provides for routine infrared inspections of overhead distribution lines in CPUC Tiers 3 (Extreme Fire Threat Areas) and 2 (Elevated Fire Threat Areas). The infrared inspections are performed using infrared cameras (heat sensing cameras) which may find conditions not visible to the human eye. The findings will be evaluated and prioritized per SCE's current DIMP and addressed in the respective remediation timeframes.

LiDAR Inspection Program

SCE utilizes LiDAR, or light detection and ranging, technology to inspect select transmission and sub-transmission lines, particularly in rugged and hard-to-access areas, with respect to FAC 003-4, GO 95-Rule 35 and Public Resources Code (PRC) section 4293 (see below for more detail) to maintain appropriate clearances between SCE's lines and vegetation. LiDAR is a surveying method that measures distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor. Differences in laser return times can then be used to make digital three-dimensional representations of the target. LiDAR is an efficient and effective method to assess vegetation clearances, a key component of SCE's wildfire prevention and mitigation plan.

[7] Preservatives are applied in conformance with the regulations of the California Department of Pesticide Regulation. In 2016 and 2017, 99.76% of passing poles had preservatives applied.

VEGETATION MANAGEMENT

The Vegetation Management organization oversees the inspection, pruning, and removal of vegetation to prevent vegetation-related outages, tree/power line-related wildland fires, and for overall public safety. SCE currently monitors and maintains an inventory of over 900,000 trees in proximity to the overhead T&D system. Of this total inventory, nearly 40% is located within the CPUC established Tier 2 & Tier 3 High Fire Threat Districts. The following programs are in place within the organization to mitigate wildfire risk.

VEGETATION MANAGEMENT COMPLIANCE PROGRAM

SCE meets or exceeds all applicable federal and state vegetation clearance requirements and performs regular power line vegetation management activities in accordance with industry standards, guidelines and procedures to reduce outages or fires caused by trees or other vegetation. Excerpts from the applicable regulations are as follows:

- ***North American Electric Reliability Corporation (NERC) FAC-003-4:*** *To maintain a reliable electric transmission system by using a defense-in-depth strategy to manage vegetation located on transmission rights of way (ROW) and minimize encroachments from vegetation located adjacent to the ROW, thus preventing the risk of those vegetation related outages that could lead to Cascading.*

- ***California Public Utility Commission (CPUC) General Order 95, Rule 35:*** *Where overhead conductors traverse trees and vegetation, safety and reliability of service demand that certain vegetation management activities be performed in order to establish necessary and reasonable clearances the minimum clearances set forth in Table 1, Cases 13 and 14, measured between line conductors and vegetation under normal conditions, shall be maintained. These requirements apply to all overhead electrical supply and communication facilities that are covered by this General Order, including facilities on lands owned and maintained by California state and local agencies.*

Table 1, Cases 13 and 14

Table 1 (Continued)

Case No.	Nature of Clearance	Wire or Conductor Concerned						
		A Span Wires (Other than Trolley Span Wires) Overhead Guys and Messengers	B Communication Conductors (Including Open Wire, Cables and Service Drops), Supply Service Drops of 0 - 750 Volts	C Trolley Contact, Feeder and Span Wires, 0 - 5,000 Volts	D Supply Conductors of 0 - 750 Volts and Supply Cables Treated as in Rule 57.8	E Supply Conductors and Supply Cables, 750 - 22,500 Volts	F Supply Conductors and Supply Cables, 22.5 - 300 kV	G Supply Conductors and Supply Cables, 300 - 550 kV (mm)
13	Radial clearance of bare line conductors from tree branches or foliage (aaa) (ddd)	-	-	18 inches (bbb)	-	18 inches (bbb)	1/4 pin spacing shown in table 2, Case 15 (bbb) (ccc)	1/2 pin spacing shown in table 2, Case 15
14	Radial clearance of bare line conductors from vegetation in Extreme and VeryHigh Fire Threat Zones in Southern California (aaa) (ddd) (hhh)(jjj)			18 inches (bbb)		48 inches (bbb) (iii)	48 inches (fff)	120 inches (ggg)

- ***Public Resource Code (PRC) 4292:*** *Any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for fire protection of such areas, 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.*

- ***Public Resource Code (PRC) 4293:*** *Any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such areas, maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:*
    - *(a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, four feet.*
    - *(b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, six feet.*
    - *(c) For any line which is operating at 110,000 or more volts, 10 feet.*

Risk Tree Program

SCE is implementing a Risk Tree Management Plan (RTMP) to identify, document, and mitigate trees that are expected to pose a risk to electric facilities based on the tree's observed structural condition and site considerations. The RTMP will address trees within and outside of SCE's Transmission Right of Way and in proximity to SCE's Distribution system. The objective is to mitigate the potential risk to SCE's electric facilities from structurally unsound trees that can fail in total, or in part, and from palm trees or other tree species that can dislodge or shed branches during high winds.

High-Fire Program

SCE's Vegetation Management program includes the performance of supplemental vegetation inspections before June 1, within and outside of high fire risk areas (HFRA), urban-wildlife interface zones, and SCE-identified canyon areas to identify trees for pruning or removal based on proximity to power lines, visible health, and expected growth (or decline) due to known or anticipated environmental conditions, such as drought. SCE conducts supplemental patrols and inspections of vegetation within SCE's HFRA quarterly to identify and remove dead, dying, and diseased trees affected by drought conditions.

Operation Santa Ana

T&D Vegetation Management staff meets and accompanies local, county, and/or state fire agency personnel in the performance of supplemental patrols of overhead power-lines each year before and during the higher fire risk period. This activity is known as *Operation Santa Ana* and has a long-standing history going on 20 years. Operation Santa Ana is a joint patrol effort alongside regulatory fire authorities to better understand each agencies roles and responsibilities and provides cross-training opportunities. These patrols focus on adherence to PRC 4292 and PRC 4293 requirements.

Pole Brushing Program

SCE maintains nearly 80,000 poles with non-exempt[5] attachments that require 10' radial clearance at the base to comply with PRC 4292. Of these poles, over 50,000 are located with the CPUC's Tier 2 and Tier 3 High Fire Threat Districts. SCE is continuously analyzing and addressing engineering options to reduce potential ignition sources from these poles through equipment replacement and upgrades (Grid Resiliency).

Weed Abatement Program

To comply with California Government Codes, County and Local ordinances, SCE's Vegetation Management Program abates weeds from its Fee-Owned parcels along its Transmission Rights-of-Way. Weed Abatement activities are performed annually, and as needed, additional abatement is completed on a semi-annual basis. Abatement schedules are tailored to complete the most critical HFRAs prior to the official start of the higher risk period.

SITUATIONAL AWARENESS

Situational awareness is an integral part of emergency management, as it is imperative SCE has a granular understanding of what is happening across its service area prior to, and during, emergency events. SCE has already made significant enhancements in this area over the last few years and today has a Watch Office that monitors activities on a 24/7 basis, notifying response teams when action is needed, and updating SCE's management on evolving events. The Watch Office is co-located within the Emergency Operations Center (EOC), which was recently upgraded in 2016 and also serves as the training center for Incident Management Teams. SCE also has meteorologists on staff, and uses various measures to monitor evolving weather, fuel, and other conditions that might lead to fire events and other hazardous conditions.

SCE is further enhancing its situational awareness capabilities to address increasing fire risks throughout its service area. SCE is primarily focused on accessing more detailed information about wildfire risk at the individual circuit level, to better understand how weather conditions might impact utility infrastructure and public safety in HFRAs. This includes contracting with IBM to access a high-resolution weather model, and strategically installing weather stations to enhance the IBM high resolution model with real time data near circuits in HFRA's. SCE is also installing high-definition (HD) cameras in HFRAs to help fire responders and utility staff maintain visual awareness of potential fire events in real time. This data will be sent into a newly-established Situational Awareness Center co-located in SCE's EOC with the SCE Watch Office. This is where meteorologists and Geographic Information System (mapping) specialists will aggregate the data into useful programs. As described in more detail below, SCE is procuring and installing a high-performance computer platform that will enable aggregation of complex data to generate geographically based fire potential indices to approximate wildfire risk across its service area.

These new capabilities will better inform operational decisions, help SCE's emergency management staff determine how best to reduce potential wildfire risks, and make the utility even more effective in responding to fire events when they occur.

ADVANCED WEATHER MODELING TOOL (IBM)

SCE is in the process of deploying IBM's Forecast on Demand System, a comprehensive, advanced weather monitoring platform with faster weather data incorporation and higher resolution compared to other available systems. The IBM system provides several benefits, including enhanced resolution and more accurate forecast data to better inform deployment of SCE's PSPS protocol. As Resolution ESRB-8 recognized, de-energizing electric facilities for public safety is complex, and depends on many factors including local meteorological conditions of humidity and winds. The modeling tool addresses this issue by providing more frequent, higher-resolution forecast data on one comprehensive platform. SCE tested a "proof of concept" for this system and anticipates fully deploying it in 2018-2019 time frame.

Weather Stations

SCE is in the process of enhancing its existing weather models by installing weather stations on selected circuits within HFRA. SCE intends to install up to 850 weather stations in HRFAs between 2018 and 2020. To date, SCE has installed approximately 125 new stations, and SCE's fire meteorologists will continue identifying potential locations for installation in 2019 and 2020. These additional weather stations will be placed at selected locations to enhance the resolution of existing weather models and provide real-time information to assist with making key operational decisions during potential fire conditions, including PSPS deployment.

In today's higher risk fire environment, this information is crucial to informing operational decisions during severe fire conditions. This includes potential deployment of PSPS. The Commission recognized in Resolution ESRB-8 that de-energizing electric facilities for public safety is complex, and depends on many factors including "local meteorological conditions of humidity and winds."

High Definition Cameras

SCE is installing pan-tilt-zoom (PTZ) HD cameras throughout its HFRA to enable fire agencies and SCE personnel to more quickly address emerging wildfires, helping mitigate potential safety risks to the public and prevent damage to electric infrastructure. HD camera views will transmit into SCE's Situational Awareness Center, and will be used by its Incident Management Teams to decide how to deploy crews and make other operational decisions, such as PSPS activation.

Deploying HD cameras in its HFRA will enhance SCE's situational awareness capabilities and enable emergency management personnel, including fire agencies, to more quickly respond to emerging wildfires. In particular, HD camera images save additional time in verifying and assessing a fire's severity as compared to sending fire crews to perform this assessment. Between 2018 and 2020, SCE is targeting installation of up to 160 PTZ HD cameras on approximately 80 towers within HFRA to achieve up to 90 percent coverage of SCE's HFRA.

High Performance Computing Platform

SCE is in the process of deploying a high-performance computing platform to improve its ability to scientifically quantify the risk of wildfire ignitions in different geographic regions throughout its service area. Specifically, SCE is procuring advanced computer hardware and state-of-the-art software that will run a sophisticated Fire Potential Index model that will account for various factors including weather, live fuel moisture, and dead fuel moisture to assess the level of risk of wildfire ignitions. This platform will also enable software to analyze decades of data for fuel and weather characteristics from past wildfire ignitions, and compare and contrast those variables against current conditions to forecast the Fire Potential Index. The output from this model will be used to inform operational decisions, implement work restrictions, and optimize resource allocation for emergency situations. SCE is currently obtaining the hardware and software for its high-performance computing platform and intends to utilize this software starting in 2019.

METEOROLOGY AND FIRE RESPONSE EXPERTS

SCE staffs its Situational Awareness Center with a team of in-house meteorologists who have a specialized understanding of fire weather characteristics. All of the meteorologists are members of the American Meteorological Society and hold degrees in Atmospheric Sciences. This team of professionals is responsible for using the aforementioned forecasting tools and weather stations to develop comprehensive weather forecast products starting 4-7 days in advance of any predicted severe weather event. This information is provided to impacted departments and incident management personnel and is critical in shaping response and mitigation activities for wildfire events. Forecasts continue to be produced and refined as the event approaches and are essential inputs for identifying impacted circuits so field personnel can be dispatched to at-risk locations to monitor real-time conditions.

SCE also staffs specialized Fire Management experts that monitor, respond to and report on fires affecting or determined to have the potential to affect SCE infrastructure. These personnel represent SCE during fire incidents, typically by serving as a cooperator in the fire incident management structure. They coordinate SCE's response to fires by providing information to manage the bulk electric system, repair damage, restore the electric system, and safely gain access to begin restoration work. These personnel maintain close working relationships with fire and emergency management agencies throughout the service territory and serve as a consultant and subject matter expert on fire risk management. They provide actionable and timely information to Grid Operations, T&D, Power Production, Air Operations, Claims, and the Watch Office. They also enhance first responder safety by developing and delivering Electrical Safety for First Responders Awareness Training.

EDUCATION AND OUTREACH

SCE continues to host meetings and provide information to county Offices of Emergency Management (OEMs), local and tribal governments, public safety agencies and community members (including selected groups through specialized workshops) that may be impacted by circuits that traverse HFRAs. These meetings enable SCE to provide information regarding its Public Safety Power Shutoff protocol as well as its wildfire mitigation efforts. Additionally, SCE is taking the opportunity to convey the importance of community resiliency in the event of any outage, regardless of cause. Importantly, these meetings also provide opportunities for SCE to receive feedback from its customers and to incorporate this feedback into its planning process and the PSPS protocol. The following details specific topics discussed with each stakeholder group.

PUBLIC SAFETY AGENCIES

SCE has begun and plans to continue holding regular meetings with public safety agencies to include Fire, Law and Emergency Management to continue the dialogue around PSPS and collaborate on both mitigation strategies and event protocols. SCE will also provide regular updates to those cities in HFRAs. Meeting topics include, but are not limited to:

- How circuits were identified as being high fire risk and subject to PSPS
- Overview of criteria and other factors used to determine if a circuit will be de-energized
- Customer and agency notification process before and during an event
- Information on SCE's Incident Command System structure during an event
- Requests for local governments and other agencies to provide SCE with information on situational awareness and other concerns with de-energizing particular circuits
- The process to request circuit re-energization from SCE
- The process used to undertake re-energization of circuits after a PSPS event
- The provision of Geographic Information System (GIS) layers of HFRA circuits to aid in emergency planning process

LOCAL GOVERNMENTS

SCE's engagement with local governments includes the following:

- Information (via email) on its PSPS protocol as well as its wildfire mitigation efforts to representatives of approximately 235 cities, counties, and unincorporated communities with HFRA circuits (Note: Unincorporated communities are included in outreach to counties)
- Offers to meet and meetings with key city and county personnel to further review and discuss any of the topics presented
- Offers to provide maps of HFRA Circuits – both PDF and GIS layers
- Requests for local governments and other agencies to provide SCE information on critical facilities and other concerns resulting from de-energizing particular circuits
- Upon request, SCE has presented at city council and local Public Safety Commission meetings

Business Customers

SCE's Business Customer Division (BCD) holds Outage Schools annually with both business and residential customers. These meetings are designed to help customers understand what to expect during an outage, including an outage related to PSPS. Outage schools will continue annually throughout SCE's service territory and topics include:

- The process for determining the extent of an outage (damage assessment)
- Information on notification process during an outage
- Details on SCE's PSPS
- Outage restoration information

Essential Use Customers

Essential Use customers are non-residential customers who provide an essential public health, safety, and security services to the public. Essential use customers go through an annual process to re-certify their essential status. SCE will continue to educate these customers on the PSPS protocol and processes.

Critical Care Customers

Every year, SCE sends an annual Medical Baseline letter to all customers enrolled in the Medical Baseline program (about 92,000). The letter reminds customers that they need to have an emergency back-up plan for when outages occur and requests that they contact SCE to ensure that SCE has provide their most up-to-date contact information for use in the event of power outages. Additionally, the letter reminds them that SCE can send alerts and notifications through an alternate preferred method of contact that they provide us. The most recent letter was delivered in June 2018. If a Critical Care customer cannot be reached via their preferred communication method and an outage will exceed more than 12 hours, SCE will send a field representative to the home in order to perform a welfare check.

General Outreach

SCE will send an annual letter to customers that live in HFRAs informing them of the following; the potential for a PSPS in their area, details on the notification process during an event, and criteria that would lead us to using the PSPS protocol. SCE will also include information on; how best to prepare for an outage regardless of cause, how to sign up for the Medical Baseline Program, SCE contact information, and directions for accessing SCE's Website where additional details on SCE's wildfire mitigation activities may be found.

COMMUNITY WORKSHOPS

SCE has also conducted an extensive series of community meetings within its service territory regarding the specifics of its de-energization protocol. The purpose of these meetings was to provide information on SCE's fire mitigation activities including its potential use of the PSPS protocol. SCE subject matter experts presented at the meetings and answered questions related to a variety of topics including:

- The State's "New Normal" with respect to climate change impacts on wildfire frequency and intensity
- System Hardening & Engineering Practices
- Vegetation Management
- Situational Awareness (weather monitoring)
- PSPS Protocol
- Outage Safety

After a PSPS event, SCE plans to hold additional meetings in the impacted communities to provide an opportunity for all parties to have a dialogue on the event and potential process changes from lessons learned.