BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for Regulation of Physical Security for the Electric Supply Facilities of Electrical Corporations Consistent with Public Utilities Code Section 364 and to Establish Standards for Disaster and Emergency Preparedness Plans for Electrical Corporations and Regulated Water Companies Pursuant to Public Utilities Code Section 768.6.	Rulemaking 15-06-009

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) FINAL DISTRIBUTION SECURITY PLAN REPORT OF PRIORITY DISTRIBUTION FACILITIES TO THE CALIFORNIA PUBLIC UTILITIES COMMISSION PURSUANT TO DECISION 19-01-018

PUBLIC VERSION

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Table 1: Decision Requirements and Corresponding Plan References

The following table describes the requirements of the Final Distribution Security Plan as identified in the Ordering Paragraphs of California Public Utilities Commission (CPUC) Decision 19.01.018, further referred to as Decision, and where detail can be found in this document to meet the specific requirement outlined. This table only reflects the Ordering Paragraphs that apply to Investor Owned Utilities (IOU's) in the creation and submission of SCE's Final Distribution Security Plan.

#	Ordering Paragraph	Corresponding Section in the Confidential Version of the Plan
1	"Within 18 months of this decision being adopted, Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco shall prepare and submit to the Commission a preliminary assessment of priority facilities for their distribution assets and control centers."	
2	"Within 30 months of this decision being adopted, Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco shall submit each utility's Final Security Plan Report."	
5	"All California Electric Utility Distribution Asset Physical Security Plans shall conform to the requirements outlined within the Joint Utility Proposal, as modified by this decision (rules and requirements collectively known as "security plan requirements")."	
6	"The Investor Owned Utilities and Publicly Owned Utilities shall adhere to the Safety and Enforcement Division's Six-step Security Plan Process."	
7	"The Six-step Plan Process consists of the following: Assessment; Independent Review and Utility Response to Recommendations; Safety and Enforcement Division Review (for Investor Owned Utilities s); Local Plan Review (for Publicly Owned Utilities); Maintenance and Plan overhaul/new review."	
8	"Subsequent changes to the security plan requirements deemed beneficial and necessary, shall be enabled by one of the following: 1) Commission Resolution or Decision; 2) Ministerially, by Safety and Enforcement Division (or successor entity) director letter."	

#	Ordering Paragraph	Corresponding Section in the Confidential Version of the Plan
9	"In carrying out any future changes to the security plan requirements, Safety and Enforcement Division shall confer with utilities about any recommended modifications to the plan requirements."	
10	"Prior to the submittal of the Security Plan, Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco shall each have their respective plan reviewed by an unaffiliated third-party entity."	
11	"The unaffiliated third-party reviewer shall have demonstrated appropriate physical security expertise."	
12	"California electric utilities shall, within any new or renovated distribution substation, design their facilities to incorporate reasonable security features."	
13	"Utility security plans shall include a detailed narrative explaining how the utility is taking steps to implement an asset management program to promote optimization, and quality assurance for tracking and locating spare parts stock, ensuring availability, and the rapid dispatch of available spare parts."	
14	"Utility security plans shall include a detailed narrative explaining how the utility is taking steps to implement a robust workforce training and retention program to employ a full roster of highly-qualified service technicians able to respond to make repairs in short order throughout a utility's service territory using spare parts stockpiles and inventory."	
15	"Utility security plans shall include a detailed narrative explaining how the utility is taking steps to implement a preventative maintenance plan for security equipment to ensure that mitigation measures are functional and performing adequately."	
16	"Utility security plans shall include a detailed narrative explaining how the utility is taking steps to implement a description of Distribution Control Center and Security Control Center roles and actions related to distribution system physical security."	
17	Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley	

#	Ordering Paragraph	Corresponding Section in the Confidential Version of the Plan
	Electric Service, and Liberty CalPeco shall each document all third-party reviewer recommendations and specify recommendations that were accepted or declined by the utility.	
18	Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco shall each provide justification supporting its decision to accept or decline any third-party recommendations.	
19	Physical Security-related information is bifurcated into two categories. Recurring and routine utility compliance work products and ongoing utility updates required by this decision are not subject to the Reading Room approach but shall be transmitted to the Commission. All other physical security data requested by Commission staff on an ad hoc basis shall be made available to the Commission on utility property in a manner agreed to by the Safety and Enforcement Division, or its successor, until such time that the Commission finalizes its rules for the handling, sharing, and inspection of confidential information.	
25	Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco shall conduct a program review of their Security Plan and associated physical security program every five years after Commission review of the first iteration of the Security Plan.	
26	A summary of the program review shall be submitted to the Safety and Enforcement Division within 30 days of review completion.	
27	In the event of a major physical security event that impacts public safety or results in major sustained outages, all utilities shall preserve records and evidence associated with such event and shall provide the Commission full unfettered access to information associated with its physical security program and the circumstances surrounding such event.	
28	An Exemption Request Process shall be available to utilities whose compliance would be clearly inappropriate of inapplicable or whose participation would result in an undue burden and hardship.	

#	Ordering Paragraph	Corresponding Section in the Confidential Version of the Plan
29	Utilities shall provide to the Director of the Safety and Enforcement Division and Energy Division copies of the OE-417 reports submitted to the United States Department of Energy (U.S. DOE) within two weeks of filing with U.S. DOE.	
30	Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco (collectively, IOUs) shall seek recovery of costs associated with their respective Distribution Security Programs in each IOU's general rate case.	
31	The utilities shall submit an annual report by March 31 each year beginning 2020, reporting physical incidents that result in any utility insurance claims, providing information on incident, location, impact on infrastructure and amount of claim. The insurance claim disclosure reporting, as described in this decision, should be included within a utility's broader annual Physical Security Report to the Commission due every March 31, beginning in 2020.	
33	This proceeding shall remain open so that the Commission may address the issues presented in Phase II of this proceeding.	

1.0 Executive Summary

Southern California Edison Company (SCE) started this assessment process by adopting the premise established by the National Infrastructure Advisory Council (NIAC) that "Utilities harden assets and build in redundancy where it makes economic sense based on likely risk, cost, and impact. However, protecting against all risks to the electric grid is impractical. That is why rapid recovery is often the most cost-effective and flexible resilience strategy for the electricity sector."[1]

We also understand that a one-size-fits-all approach will not work. We look to have flexibility in addressing physical security risks in a manner that works best for each of our specific sites, consistent with risk, and specific to each site's needs based on geographic location and physical surroundings, history of criminal activity in the area, and response time of security and or law enforcement.

This Final Distribution Security Plan Report lays out the considerations and processes used to identify SCE's Priority Distribution Facilities, their identified vulnerabilities, and mitigation plans to address those vulnerabilities. It documents the review and recommendations of the independent third-party for these Priority Distribution Facilities and SCE's response to those recommendations.

SCE uses the processes set out for the identification of its Priority Distribution Facilities, the ongoing assessments and mitigation of those facilities including those that may become in scope. These steps are taken in alignment with the Joint Utilities Proposal, and the Six-Step Procedure as outlined in section 6.1 of the California Public Utilities Commission (CPUC) Decision 19-01-018, further referred to as the Decision, and required in Ordering Paragraphs (OP) 5, 6, and 7. These requirements are further discussed in section 8.0 of this report.

Pursuant to this Decision, SCE is addressing the risk of a long-term outage due to a physical attack, and the reduction of the risk and consequences of a successful physical attack on one of its Priority Distribution Facilities. These processes address requirements set forth in the Decision's Ordering Paragraph 1 (page 50) and the Decision's Section 4.1 ("Identification", pages 24-26) and 4.2 ("Assessment", pages 26-27). Additionally, this report lays out the remaining processes by which its Priority Distribution Facilities were identified, how the mitigation plans were developed to protect them, and how those mitigation plans were reviewed by an independent third-party. The third-party reviews were conducted to appraise and validate the appropriateness of the risk assessment, the proposed mitigation measures selected, and to recommend possible additional mitigations. The entirety of these processes went beyond the Initial Assessment and Identification of its Priority Distribution Facilities and addressed steps taken in preparation of SCE's Final Distribution Security Plan Report, and its ongoing reporting and assessment requirements.

[1] Department of Homeland Security, National Infrastructure Advisory Council. (2010, October 19). A Framework for Establishing Critical Infrastructure Resilience Goals Final Report and Recommendations by the Council. https://www.cisa.gov/sites/default/files/publications/niac-framework-establishing-resilience-goals-final-report-10-19-10-508.pdf, p. 48.

2.0 Introduction & Background

SCE's initial work on this Decision, and its response to it, utilized several processes developed to identify its Priority Distribution Facilities. This was done to address the risk of a long-term outage[2] due to a physical attack, and to reduce the risk and consequences of a successful physical attack on one of its Priority Distribution Facilities. This section provides the background of the steps taken to develop this Final Distribution Security Plan Report.

SCE started its review and analysis of this Decision in March of 2019. To ensure a consistent Investor Owned Utilities (IOUs) approach to applying the criteria in section 4 of the Decision, SCE collaborated with the other California IOUs to jointly agree on assumptions to assist in accurately identifying customers subject to these criteria. SCE started informal communications with SDG&E and PG&E in April 2019, followed by more formal monthly meetings in May 2019, which have evolved into a combination of formal and informal meetings including the rest of the California IOUs. These meetings provided an ongoing forum to identify assumptions for the criteria, methods of identifying customers, processes, mitigations, and reporting formats.

Identifying the criteria assumptions was the crucial first step in identifying our Priority Distribution Facilities. The second was to contact potentially in-scope customers to determine if they met one of the criteria.

The following is the list of criteria from the Decision, and the assumptions that were developed collaboratively with other IOUs that were used by SCE to help identify the customers or facilities that met one of the criteria:

1. Distribution Facility necessary for crank path, black start, or capability essential to the restoration of regional electricity service that is not subject to the California Independent System Operator's (CAISO) operational control and/or subject to North American Electric Reliability Corporation (NERC) Reliability Standard CIP-014-2 or its successors. ***Assumption:*** None.

2. Distribution Facility that is the primary source of electrical service to a military installation essential to national security and/or emergency response services (may include certain airfields, command centers, weapons stations, emergency supply depots). ***Assumption:*** Only sites essential to national security or emergency responses (For example, this would exclude recruiting offices and armories.)

3. Distribution Facility that serves installations necessary for the provision of regional drinking water supplies and wastewater services (may include certain aqueducts, well fields, groundwater pumps, and treatment plants).

[2] Long-term outage assumption: ninety-six hours set as time by which essential customer's power to be restored due to a physical attack.

Assumption: Regional drinking water and wastewater sites that provide or treat one hundred million gallons per day." (Originally, this was "Regional drinking water and wastewater sites that supply service to 40,000 customers or to a population of 100,000 or more.")

4. Distribution Facility that serves a regional public safety establishment (may include County Emergency Operations Centers; county sheriff's department and major city police department headquarters, major state and county fire service headquarters' county jails and state and federal prisons' and 911 dispatch centers).
   ***Assumptions*:** Major Police and Fire Department is defined as serving a population of 1,500,000 and having at least 1,000 sworn Officers (per the Major Cities Chiefs of Police Association (MCCA)), or a County Sheriff's Department main headquarters. Regional public safety establishments include County Emergency Operation Center, County Fire headquarters, State Fire headquarters, and County, State and Federal main jails.

5. Distribution Facility that serves a major transportation facility (may include International Airport, Mega Seaport, other air traffic control center, and international border crossing).
   Assumption: Applies to International Airports, Major Sea Port, Air Traffic Control

6. Distribution Facility that serves a Level 1 Trauma Center as designated by the California Emergency Medical Services Authority.
   Assumption: None.

7. Distribution Facility that serves over 60,000 meters.
   Assumption: None.

After the presentation and review of the IOU's preliminary reports, CPUC requested that all of the IOU's use the following assumption for criteria number three, "Regional drinking water and wastewater sites that provide or treat one hundred million gallons per day." SCE did not have any Priority Distribution Facilities under either assumption, so the change did not affect our list of Priority Distribution Facilities. SCE has updated its processes to use this newer criteria assumption going forward.

SCE applied these criteria and assumptions to develop a set of processes that would first identify any customers meeting one of the criteria listed in the Decision, identify which were Priority Distribution Facilities, and then assess their vulnerabilities. The processes would be used in developing mitigation plans, having a third-party review of those plans, and to develop the Final Distribution Security Plan. These processes are further described in section 8.

After the IOUs Preliminary Reports were provided, CPUC requested that the IOUs include not only the assessment or analysis of its distribution facilities electrical system redundancies, even where there were found to be sufficient redundancies in those electrical systems, but also an assessment or analysis of their distribution facilities security controls and measures. CPUC Safety & Enforcement Division (SED) members worked with IOU teams to develop an assessment method. The resulting spreadsheet provided a preliminary overall risk for each of the potential Priority Distribution Facilities applying specific site recovery, resilience, and security

information to determine consequence, vulnerability, and threat aspects. Due to the large number of distribution facilities potentially in scope for some of the IOUs, SED agreed that the assessment of the security measures and controls could be accomplished at a preliminary level using prior knowledge and photos of their sites.

3.0 SCE's Assets

SCE serves an estimated fifteen million customers in California over an approximate fifty thousand square mile territory. It provides generation, transmission, and distribution of electrical power to its customers through a network of transmission and distribution systems. The distribution system is the backbone in the final leg of providing its residential, commercial and government customers safe, reliable, and affordable electrical power. The distribution system is made of over eight hundred facilities that include substations and operation centers, some of which serve essential service customers. SCE identified one hundred and forty-two of its distribution facilities as serving essential customers that met one of the seven criteria enumerated in the Decision. Those sites were assessed to determine if they had sufficient system redundancy, resiliency, and security measures in place. Those assessed to be lacking were identified as its Priority Distribution Facilities, which were then subjected to an additional series of assessments to determine recommended mitigations. These assessments are identified in the processes listed in section 8.0.

4.0 Distribution Security Plan Contents and Management

SCE's Final Distribution Security Plan incorporated processes and procedures developed in collaboration with the other IOU's and CPUC SED's to identify SCE's Priority Distribution Facilities, their vulnerabilities, and develop appropriate mitigation plans to address those vulnerabilities. SCE used a risk management approach to address the risk of a long-term outage due to a physical attack, and to reduce the risk and consequences of a successful physical attack on one of its Priority Distribution Facilities. This section covers SCE's internal processes used to ensure compliance with this Decision.

4.1 Plan Management and Ownership

SCE is committed to achieving compliance with laws and regulations that govern its operations. SCE's Energy Regulation Compliance Program (ERCP) ensures effective governance and processes are in place to achieve compliance with Federal and State regulations assigned to ERCP's jurisdiction, which includes compliance requirements set forth by the CPUC.

SCE implemented a series of Programs under its ERCP to achieve compliance with specific mandated requirements. One of these programs is the Physical Security Protection (PHY) Program. The PHY Program is responsible to ensure compliance with all of the compliance requirements set forth in CPUC's Decision 19-01-018 that are applicable to SCE, except for the compliance requirement set forth in Ordering Paragraph 29 related to OE-417 reporting, which falls under the responsibility of SCE's Grid Control Center (GCC) personnel, who currently

report OE-417 internally that leads to copies being sent to CPUC at the following email addresses, CPUC EnergyDivisionCentralFiles@cpuc.ca.gov and ESRB_ComplianceFilings@cpuc.ca.gov). The PHY Program is also responsible to ensure overall compliance with NERC Reliability Standard CIP-014-02.

The responsibility to govern the PHY Program is assigned to SCE's Corporate Security management, which includes two key roles that manage the overall program and its operations: The program owner and the program manager. The program owner, also known as the Compliance Chief, is responsible for compliance with assigned requirements, directing, and overseeing the effective design and operation of their respective compliance activities, and ensuring related processes and technologies meet compliance objectives. The program owner shall be at the director level, or at the level reporting directly to a VP if no director level is available, and work with impacted Organizational Units (OUs) to resolve compliance impacts affecting their OUs (e.g. operational, financial, etc.). The program manager, also known as the compliance lead, represents the program owner in the execution of the day-to-day compliance and control activities. The program manager ensures efficiency in the operations on behalf of the program owner and escalates issues and/or areas of concern. The program manager manages the overall compliance activities and provides direction and guidance to supporting personnel. The program manager ensures compliance to the requirements assigned to them. The program manager shall be at the next management level below the program owner (exceptions must be approved by the E&C Compliance Operations Principal Manager.)

This Final Distribution Security Plan is owned and maintained by the PHY Program. Any proposed changes to the plan must be reviewed with all the impacted internal stakeholders. The plan and any changes to the plan must be reviewed and approved by the PHY Program Owner and/or the PHY Program Manager. The Revision History section of this plan must clearly document the review of the plan, detailed changes to the plan including changes in facilities covered by the plan and major mitigation upgrades at previously identified facilities, the approver of any revisions made to the plan (i.e., program owner or program manager), and the approval date. It is of upmost importance that detailed changes to the plan are documented appropriately, since OP 31 requires that SCE submits an annual Physical Security Report to the Commission by March 31 every year, and the report must include any significant changes to the Distribution Security Plan, including new facilities covered by the plan or major mitigation upgrades at previously identified facilities.

After the Distribution Security Plan has been approved by the PHY Program Owner and/or the PHY Program Manager, the plan is communicated and made available to all the impacted stakeholders responsible for the implementation of the plan.

4.2 Requirements and Structure

Ordering Paragraph 8. "Subsequent changes to the security plan requirements deemed beneficial and necessary, shall be enabled by one of the following: 1) Commission Resolution or Decision; 2) Ministerially, by Safety and Enforcement Division (or successor entity) director letter."

Ordering Paragraph 9. "In carrying out any future changes to the security plan requirements, Safety and Enforcement Division shall confer with utilities about any recommended modifications to the plan requirements."

Ordering Paragraph 25. "Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco shall conduct a program review of their Security Plan and associated physical security program every five years after Commission review of the first iteration of the Security Plan. "

Ordering Paragraph 26. A summary of the program review shall be submitted to the Safety and Enforcement Division within 30 days of review completion.

4.2.1 Subsequent Security Plan Requirement Changes

Pursuant to OP 8, as deemed necessary and appropriate, the CPUC may make changes to the requirements of this Decision. SCE shall work to incorporate all requirement changes into its Distribution Security Plan and ensure those changes are reported to the CPUC as required by this Decision.

4.2.2 Recommended Security Plan Modifications

Pursuant to OP 9, SCE shall work in collaboration with the CPUC and other IOUs on any proposed changes to this plan. SCE will strive to ensure the continued alignment with the original premise established by the NIAC that "utilities harden assets and build in redundancy where it makes economic sense based on likely risk, cost, and impact. However, protecting against all risks to the electric grid is impractical. That is why rapid recovery is often the most cost-effective and flexible resilience strategy for the electricity sector."

4.2.3 Five Year Plan Review

Pursuant to OP 25, SCE will conduct a review of its Distribution Security Plan and associated physical security program every five years after the Commission review of its original Distribution Security Plan. This review will ensure its continued alignment with the current requirements for this Decision and include updates and or modifications to its processes, security plan, and identified Priority Distribution Facilities. Any significant updates, modifications to its processes and plan shall be reported in the Annual Report or the five-year review report, whichever comes first.

4.2.4 Summary of Program Review

Pursuant to OP 26, SCE shall within thirty days of its five-year review of its Distribution Security Plan, submit a summary of its review to the CPUC. The summary shall capture any changes, updates, or modifications to its processes and plan. It shall include any additional distribution facilities that have been identified as Priority Distribution Facilities since the previous Distribution Security Plan or it is update, and any significant changes to the Priority Distribution Facilities previously reported in its Distribution Security Plan

5.0 New Substation Construction

Ordering Paragraph 12: "California electric utilities shall, within any new or renovated distribution substation, design their facilities to incorporate reasonable security features. "

SCE continually assesses its distribution and Priority Distribution Facilities where we have deployed security mitigations to evaluate their ongoing effectiveness. When SCE identifies a new mitigation, based on risk, that should be added as a base line mitigation for its distribution assets, it is added to the standard for use in any new or majorly renovated distribution asset. These standards are routinely reviewed to ensure a mitigation in the standard is still valid and appropriate. These standards are a baseline that may be deviated from to either increase or decrease security measures dependent on the applicability at each site based on that site's conditions and risk.

SCE's Physical Security Standards are in place to drive security-centric execution of new construction, remodels/refreshes of existing facilities, and to meet established compliance requirements. Legacy facilities, which complied with current standards at the time, are considered in compliance until the next approved renovation cycle. For existing facilities, upgrades will be planned in a phased approach based on approved funding, risk, prioritization, and other business-driven considerations.

6.0 SCE's Substation Asset Management Programs

SCE's asset management programs cover a range of items pertaining to its distribution systems and their physical security. The following portions of this section will identify and cover programs, processes, and policies pertaining to critical spare parts inventory, workforce training and retention for the employees that maintain and repair these facilities, and the maintenance of the security equipment that protects these facilities.

6.1 Critical Spare Parts Inventory Management

Ordering Paragraph 13: "Utility security plans shall include a detailed narrative explaining how the utility is taking steps to implement an asset management program to promote optimization, and quality assurance for tracking and locating spare parts stock, ensuring availability, and the rapid dispatch of available spare parts."

As the utility industry infrastructure is aging, electrical equipment has a higher risk of failures and maintaining a reliable grid becomes challenging. Other challenges utilities face beside aging equipment include wildfires, cyber and physical security risks, demand growth, and environmental changes. Utilities have infrastructure replacement programs to maintain a reliable grid; however, there are unforeseeable equipment failures which can significantly impact the electric grid reliability.

To prepare for unforeseeable equipment failure events, SCE has developed an Emergency Equipment Program (EEP) that maintains an inventory stock level of specific equipment & sizes found within SCE substations. The program is intended to support the immediate need to replace equipment and/or parts reactively due to a determined imminent or catastrophic failure. The EEP program minimizes the risk and duration of SCE systems abnormalities/outages by having equipment readily available to utilize. The program is detailed in SCE Substation Construction and Maintenance (SC&M), Maintenance and Inspection Manual (MIM).

SCE maintains this inventory of equipment due to the custom nature of the equipment to fit SCE's specifications/needs. This translates into potential long order lead-times for some equipment, i.e., power transformers, power circuit breakers, coupling capacitor voltage transformers, disconnect switches, and voltage regulators. One of the most critical pieces of equipment being 500kV and/or 220kV transformers as their lead time can be up to 18 months minimum. The bulk of the emergency equipment inventory addresses the SCE subtransmission and distribution systems. This inventory enables SCE to reduce outage time at the substation and minimize the customer minutes of interruption caused by an unplanned major equipment failure. In addition, to maximize resources and avoid warranty expiration or equipment obsolescence for equipment in this EEP inventory, SCE regularly rotates the equipment into various SCE projects and replaces them with newly ordered units.

In addition to EEP, 500kV and 220kV network substation (non-customer dedicated) transformers are designed in compliance with SCE Transmission Planning Criteria, where an in-situ emergency spare transformer can be energized within 24 hours. SCE also has 500kV and 220kV transformers stored at strategic, confidential locations which enable a rapid mobilization to site within regulatory guidelines. For transformer installation on 115kV systems and below, these are stored in strategic, confidential locations and can mobilized within 24 hours.

6.2 Robust Workforce Training and Retention Program

Ordering Paragraph 14: "Utility security plans shall include a detailed narrative explaining how the utility is taking steps to implement a robust workforce training and retention program to employ a full roster of highly-qualified service technicians able to respond to make repairs in short order throughout a utility's service territory using spare parts stockpiles and inventory."

The utility industry is changing at an unprecedented rate. With the development of the smart grid, the demands for more affordable and reliable energy, and an aggressive effort to reduce carbon emissions through renewable energy, training becomes critical to navigate the change. Advanced technology is reaching outside the generation facility and substation walls, and it is rapidly being integrated into field equipment. The most critical component of this changing environment is the exposure to new hazards that did not previously exist. Although we continue to build power lines similar to how it has been done for more than a hundred years, we now have to train our work force to recognize and mitigate new hazards resulting from customer-owned generation, and advanced telemetry circuit protection. Additionally, construction and maintenance of the transmission and distribution systems will require new knowledge and skills to build the grid of the future. Developing a systematic way to respond to this changing environment ensures our workforce is consistently trained and minimizes the exposure to potential hazards.

SCE takes a systematic approach to curriculum development to create foundational core learning programs that provide the appropriate level of content required to become competent in our key classifications (i.e., Linemen, Electricians, Operators, etc.). T&D Training has partnered with various stakeholders and subject matter experts to build comprehensive training programs that support business line goals, creating ownership and encouraging continuous improvement as work requirements change and grow. SCE has an extensive catalogue of learning, consisting of over sixty core technical skills training programs across T&D. Our Apprentice Programs have a three-year duration, separated into six steps. Each step consists of a combination of instructor-led classroom and on the job training (OJT) requirements. The participants are required to complete written, oral and performance testing at the close of each step to verify competency. The mandatory hands-on, performance-based training is provided in a controlled environment to equip our Apprentices with the foundational knowledge and skills required to safely and properly maintain and repair high voltage substation equipment. The training exposes the participants to all the current policies and procedures required to effectively perform their duties while adhering to all applicable rules.

Using a systematic approach to develop our training programs creates the opportunity to organize the curriculum in a way that allows us to leverage portions of the Apprentice programs, such as SCE's Maintenance Electrician Apprenticeship Program (MEAP), as a foundation for many other training programs. Apprentice training materials have been used to create training modules for multiple classifications and have also been incorporated into SCE skills refresher courses for high hazard tasks.

For reference, there are approximately:

- 50 Substation Apprentice Electrician trainees in attendance annually, with 155 Substation Electricians currently in position.
- 300 Apprentice Lineman in attendance, with an average of 100 graduates per year

Due to the strong emphasis on OJT and local management support for our Apprentice programs, Training's delivery approach continues to play a critical role in the success of the program. Measures are under way to provide additional support by evolving to include a mobile training strategy. SCE is incorporating a group of Training Specialists to support work locations across our territory to assist with the oversight of training requirements. These Mobile Training Specialists will act as mentors for the Trainees and provide guidance to local management on training program policy.

Historically, there has not been a challenge retaining work force in our key positions but on the occasion the need arises, retention strategy and planning is addressed on a case by case basis by the organizational unit's leadership team.

6.3 Substation Security Equipment Preventative Maintenance

Ordering Paragraph 15: "Utility security plans shall include a detailed narrative explaining how the utility is taking steps to implement a preventative maintenance plan for security equipment to ensure that mitigation measures are functional and performing adequately."

SCE's Corporate Security operations are supported by security technology activities, including the design, deployment and maintenance of physical security protection systems, the technology platforms for those systems, management of physical security projects, and overall compliance. These activities are carried out by its project management and technology group, which also oversees preventative and break-fix maintenance programs. The non-technology, security-related equipment such as perimeter barriers (including walls and fences), lighting, and building components such as doors, although specified by Corporate Security, are installed and maintained by other internal OUs including Transmission and Distribution (T&D), Substation Construction and Maintenance (SC&M), Grid Operations (GRID Ops), and Corporate Real Estate (CRE).

As SCE employees from each of the OUs mentioned above carry out their daily duties within its distribution facilities, all are aware of the security-related components their OUs are responsible for. SC&Ms Maintenance and Inspection Manual (MIM), as well as the Grid Ops Substation Training Operators Manual, addresses the General Order (GO) 174 substation inspection mandates that each substation be inspected at least five times annually. They inspect the electrical systems and the security systems or measures, including the perimeter barriers, access control devices and lighting. If they find any of these deficient, they are reported for repair by the responsible OUs or their vendors. The most common security issues found during these inspections and day to day operations are perimeter fences that have been cut. When this occurs, temporary repairs are made when possible until permanent repairs can be made. Dependent on the scale of damage done, a security officer could be dispatched until the fence is repaired. T&D has a Metal Theft Abatement

Program specifically targeting perimeter substation fences that have had a history of being cut or are at a high risk of being cut. This program identifies substations in scope and schedules the perimeter fences to be upgraded to a cut and climb resistant fence. The number of these upgrades per year are dictated by risk and budgetary restrictions.

Deficiencies or needed repairs to SCE security technology is identified by the site users, security officer patrols, Edison Security Operations Center (ESOC) personnel, and Regional Security Managers (RSMs). As provided for in Corporate Security's Break Fix Procedure, any client can submit a maintenance notification for equipment that needs servicing. SCE Corporate Security is implementing a robust testing schedule of all its deployed assets, which includes assessing for end-of-life replacement. This includes energized and non-energized facilities. One indicator used is the ongoing Operation and Maintenance (O&M) costs for a specific asset or set of assets at a facility versus the replacement costs. These measures are taken to ensure that all the security equipment protecting its assets are functioning and providing the security measures needed.

7.0 SCE's Distribution Control Center

Ordering Paragraph 16. "Utility security plans shall include a detailed narrative explaining how the utility is taking steps to implement a description of Distribution Control Center and Security Control Center roles and actions related to distribution system physical security."

SCE's distribution assets are monitored by one of its Distribution Operation Centers (DOCs). The DOCs are strategically located throughout its service territory; however, any one of them could cover for all the others if necessary. In case of a potential or suspected security incident, the DOC's will communicate with SCE's Edison Security Operation Center (ESOC).

SCE DOCs are responsible for monitoring the distribution system and making notifications based on information they receive from field personnel, switching centers, the call center, public agencies, and the public. The Notification Matrix is the policy and procedure used to guide the DOCs, Switching Centers, Grid Control Center (GCC), and the Watch Office through various conditions and types of incidents. In the event of a security related incident impacting the distribution system, the Watch Office and GCC will follow the processes outlined in the Notification Matrix as well as their own internal policies and procedures as required by internal and external regulators. If a security incident is suspected, the DOCs and Switching Centers will take action to address the incident operationally; concurrently, they will notify the ESOC and the GCC. The ESOC provides 24/7 real-time monitoring, response support, and security related notifications throughout the SCE territory.

This notification will trigger internal Corporate Security notifications to key stakeholders and initiate the Physical Security Incident Response Plan (PIRP). The PIRP provides a framework to facilitate an effective response to any size security incident or emergency. It is a tactical plan, outlining how Corporate Security Operational Leadership will coordinate the initial security response to overcome the unique challenges faced during a physical security incident. This plan ensures key functions are addressed and critical actions are taken following a credible threat.

Corporate Security personnel would immediately engage with Distribution personnel to gather all pertinent information related to the incident. After a preliminary assessment, including the severity of the incident, Corporate Security will begin an investigation via open source resources, and engage SCE Cybersecurity, and other departments (Legal, Risk Management, Corporate Communications etc.) as needed. If unlawful or suspicious activity is suspected or there is a credible threat known, Corporate Security will engage law enforcement at the appropriate level (local, state, or federal).

In addition to the distribution and security response, there will be a significant number of notifications required across the enterprise. The SCE Business Resiliency Watch Office (WO) will initiate these notifications via their procedures contacting entities both internally and externally. The WO will also monitor activities throughout SCE at a macro level looking for correlating information. This information will be relayed to the appropriate stakeholders, including Corporate Security. In warranted conditions, at the discretion of the Business Resiliency Duty Manager, the WO will activate a Security and Facilities Incident Management Team (SFIMT) to manage the event as needed.

8.0 SCE's Distribution Security Program

Ordering Paragraph 5: "All California Electric Utility Distribution Asset Physical Security Plans shall conform to the requirements outlined within the Joint Utility Proposal, as modified by this decision (rules and requirements collectively known as "security plan requirements").

Ordering Paragraph 6: "The Investor Owned Utilities and Publicly Owned Utilities shall adhere to the Safety and Enforcement Division's Six-step Security Plan Process."

Ordering Paragraph 7: "The Six-step Plan Process consists of the following: Assessment; Independent Review and Utility Response to Recommendations; Safety and Enforcement Division Review (for Investor Owned Utilities); Local Plan Review (for Publicly Owned Utilities); Maintenance and Plan overhaul/new review."

The following processes were developed to align the steps listed in sections 4.1 through 4.4 of the Decision with the CPUC SED's Six Step Security Plan Process. These were modeled after NERC Reliability Standard CIP-014 processes, which were referred to in the Decision. Process 1 (P-1), Process 2 (P-2), and Process 3 (P-3) align with SED's Step 1 (Assessment). Process 4 (P-4) aligns with SED's Step 2 (Independent Review and Utility Response to Recommendations). SCE's Final Distribution Security Plan aligns with SED's Step 3 (SED Review). SED's Step 4 (Local Plan Review) does not apply to IOUs; Step 5 (Maintenance) will be the ongoing plan updates and refinements; and Step 6 (Plan Overhaul / New Review) will include a five-year review and update as needed.

Any distribution asset identified in the future as a Priority Distribution Facility will be subject to the same processes, and the results will be reported to the CPUC in the subsequent Annual Report in March or in any updated Distribution Security Plan submitted pursuant to Step 6 of the SED Six Step Security Plan Process, whichever occurs first.

Process 1 (P-1): *4.1 Identification - Preliminary Assessment and Identification* process of our Priority Distribution Facilities and Distribution Control Centers that serve customers meeting any of the seven listed criteria and that may merit special protection and measures to lessen any identified risks and threats.
Output: P-1 *Preliminary Assessment and Identification* process results in a listing of our identified customer sites meeting any of the criteria and our distribution assets serving these customers to be forwarded to Process 2 for Secondary Assessment.

Process 2 (P-2): *4.2 Assessment - Secondary Assessment* to determine if existing mitigations, (physical security mitigations, redundancies in the electrical systems or customer owned generation), are sufficient or if there is a need for additional mitigation to lessen any identified risks and threats.
Output: P-2 Any Priority Distribution Facility identified in the P-2 Assessment that needs additional mitigations will be reported pursuant to Ordering Paragraph 1 ("OP1") of the Decision. This list of sites would then be subject to Process 3 for Mitigations Assessment.

Process 3 (P-3): *4.3 Mitigation Plan - Mitigation Assessment* to identify and recommend appropriate risked based mitigation plans for the Priority Distribution Facilities identified in P-2. These plans will be commensurate with the threat and risk level using a risk management approach.
Output: P-3 Mitigation Plans will then be subject to Process 4 Third-Party Review

Process 4 (P-4): *4.4 Verification – Independent Review* by an unaffiliated third-party entity who has demonstrated appropriate physical security expertise, as defined in the Decision. The Independent Review as required by Ordering Paragraph 10 ("OP10"), will provide verification of acceptable mitigations and make recommendations of additional mitigations as needed.
Output: P-4 The results of the Third-Party Review will be incorporated into the Mitigation Plans along with any third-party recommendations and justification for SCE accepting or declining their recommendations.

Final Distribution Security Plan: SCE completes and submits its *Final Distribution Security Plan* as required by the Decision in Ordering Paragraph 2 ("OP2"). This *Final Distribution Security Plan* consists of the P-2 Vulnerability Reports and corresponding P-3 Mitigation Plans, which includes the mitigation plans for each identified Priority Distribution Facility noting which independent Third-Party Review recommendations were accepted or declined. In addition, it includes a detailed narrative response to questions as required in Ordering Paragraphs 13, 14, 15, 16 ("OP13, OP14, OP15, OP16"). This *Final Distribution Security Plan* will be reviewed every five years after the Commission's initial review of this plan, which aligns with SED's Step 6 and as required by Ordering Paragraph 25 ("OP25").

8.1 Ongoing Assessment of Current and New Facilities

SCE's methodology for meeting its current and future compliance obligations under the Decision includes the continued use of the current processes outlined in section 8.0 of this report, and any that may be added as a result of the Step 6 ongoing reviews and updates to this Final Distribution Security Plan. It will also be reviewed should one of the existing components or teams involved have a significant change. SCE will also conduct an annual review of customer sites added to SCE's Essential Customers List, and of existing customers on that list that may have significant changes in electrical load requirements that result in them meeting one of the Decision's criteria. BCD Account Managers will complete their first P-1 Preliminary Assessment Process Annual Review by the end of the third quarter following the review of this Final Distribution Security Plan by CPUC.

The customer sites identified by BCD Account Managers through this annual review as meeting one of the Decision's criteria will then be reviewed by Corporate Security and forwarded to SCI for an analysis as described in the P-2 Assessment Process. This will also include a review of SCE's identified Priority Distribution Facilities that undergo an upgrade or expansion, to ensure its resiliency and ability to provide the same or greater level of service required by the identified customers.

These processes currently address Phase 1 of the Decision, but when the requirements of Phase 2 for emergency and disaster preparedness plans are provided, SCE may adjust the current processes to align and leverage the requirements of both Phase 1 and Phase 2.

8.2 Vulnerability Assessment (P-2)

The vulnerability assessment identifies potential security vulnerabilities that could increase the risk of a long-term outage due to a physical attack directed at one of SCE's Priority Distribution Facilities. These processes address requirements set forth in the Decision in Ordering Paragraph 1 (page 50) and Sections 4.1 ("Identification", pages 24-26) and 4.2 ("Assessment", pages 26-27). The P-2 Long-term outage assumption: ninety-six hours set as time by which essential customer's power to be restored due to a physical attack.

8.3 Mitigation Plan (P-3)

The security mitigation plans address the reduction of the risk of a long-term outage at a priority facility due to a physical attack. SCE does this by assessing potential mitigations to identified security vulnerabilities, including 1) potential physical security solutions, 2) existing or new electrical system redundancy, and 3) rapid recovery, and repair capability, with appropriate consideration for resiliency, impact, and cost.

8.4 Third Party Review and Verification (P-4)

Ordering Paragraph 10: "Prior to the submittal of the Security Plan, Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco shall each have their respective plan reviewed by an unaffiliated third-party entity."

Ordering Paragraph 11: "The unaffiliated third-party reviewer shall have demonstrated appropriate physical security expertise"

Ordering Paragraph 17: "Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco shall each document all third-party reviewer recommendations, and specify recommendations that were accepted or declined by the utility."

Ordering Paragraph 18: "Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco shall each provide justification supporting its decision to accept or decline any third-party recommendations."

The security plans for each of the SCE Priority Distribution Facilities were reviewed by an unaffiliated Third-Party Reviewer in accordance with the Decision. These independent reviews are documented in the P-3 Mitigation Plan Addendums identified as Appendices E, F, G, and H, located in the in the confidential version of this report. In the opinion of the reviewer, SCE's vulnerability assessments and associated mitigation plans meet or exceed the mandates specified in the Decision and comply with the requirements itemized in the Decision.

8.5 Record Keeping

Consistent with SCEs record retention procedures, electronic or hard copies of this Distribution Security Plan Implementation will be retained for not less than five (5) years. As such records are extremely confidential, these records will be maintained in a secure manner as prescribed by record retention procedures. The records maintained will be available for inspection at its headquarters or San Francisco offices by Commission staff upon request and following procedures agreed upon for this Decision.

These records will include, at a minimum:

1) SCEs Identification of Distribution Facilities requiring further assessment.

2) SCE's assessment of the potential threats and vulnerabilities of a physical attack and whether existing grid resiliency, customer-owned back-up generation and/or physical security measures appropriately mitigate the risks on each of its identified Priority Distribution Facilities.

3) SCE's Mitigation Plans covering each of its Priority Distribution Facilities identified in Section 8.1.2.

4) The unaffiliated third-party review of SCE's Identification and Assessment evaluations and the third-party evaluation of SCEs Mitigation Plans performed and developed by SCE.

5) If applicable, SCEs documented reasons for not modifying its Mitigation Plans consistent with the unaffiliated third-party's evaluation.

8.5.1 Major Physical Security Event

Ordering Paragraph 27: "In the event of a major physical security event that impacts public safety or results in major sustained outages, all utilities shall preserve records and evidence associated with such event and shall provide the Commission full unfettered access to information associated with its physical security program and the circumstances surrounding such event."

Pursuant to OP 27, In the event of a major physical security incident that impacts public safety or results in major sustained outages. SCE shall follow applicable internal processes. SCE will ensure the preservation of records and evidence associated with such incident and shall provide the Commission access to information associated with its physical security program and the circumstances surrounding such incident following procedures agreed upon for this Decision.

8.5.2 OE-417 Reporting Requirement

Ordering Paragraph 29: "Utilities shall provide to the Director of the Safety and Enforcement Division and Energy Division copies of the OE-417 reports submitted to the United States Department of Energy (U.S. DOE) within two weeks of filing with U.S. DOE."

Pursuant to OP 29 SCE shall provide to the Director of the Safety and Enforcement Division and Energy Division copies of the OE-417 reports submitted to the United States Department of Energy (U.S. DOE) within two weeks of filing with U.S. DOE. SCE currently sends its OE-417 reports to CPUC concurrently with U.S. DOE as noted in section 4.1. SCE requests CPUC's acceptance of its current submission of SCE's OE 417 as noted in section 4.1 as satisfying this requirement.

8.6 Timeline

After its initial Preliminary Report of Priority Distribution Facilities in July 2020 and this Final Distribution Security Plan Report in July 2021, SCE will follow its current timeline to implement the final mitigation. projects as identified in the P-3 Mitigation Plans identified as Appendices E, F, G, and H, located in the confidential version of this report. For distribution assets that may be identified as Priority Distribution Facilities in the future SCE will report those to CPUC in its subsequent Annual Report due in March of each year or in any update to this Plan after its five-year review, whichever occurs first. Any future site will also be subjected to the processes set out in section 8.0 including preparing a Mitigation Plan, review of that Mitigation Plan by a Third Party Reviewer, with response to any recommendations made by the reviewer and justification for any recommendation not used.

8.7 Cost

Ordering Paragraph 30: "Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison, PacifiCorp, Bear Valley Electric Service, and Liberty CalPeco (collectively, IOUs) shall seek recovery of costs associated with their respective Distribution Security Programs in each IOU's general rate case."

SCE will seek to recover the costs of its implementation of this plan as outlined in the Decision after review of this Final Distribution Security Plan by the CPUC. The request will be made in SCE's GRC following the implementation of this plan. The estimated cost for implementation of the mitigations and their estimated schedules are identified in the P-3 Mitigation Plans identified as Appendices E, F, G, and H, located in the confidential version of this report. SCE will seek the associated costs of the third-party review, costs occurred in development, and presentation of this and the associated reports to the CPUC. SCE will also seek to recover the costs of future Mitigation Plans for any additional SCE facilities that may be identified as Priority Distribution Facilities, along with the associated costs mentioned, as those plans are approved by CPUC and implemented.