PASADENA WATER AND POWER PHYSICAL SECURITY PLAN – 2026 UPDATE

PUBLIC REPORT ON PWP'S PHYSICAL SECURITY PLAN FOR DISTRIBUTION-LEVEL FACILITIES

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I. OVERVIEW

A. EXECUTIVE SUMMARY

As consistent with the Joint IOU/POU Straw Proposal and D.19-01-018, The City of Pasadena, Water and Power (PWP) have reviewed and updated our Physical Security Plan that was first submitted in June 2021.

PWP repeated the six-step development process and thoroughly performed the identification and risk assessments.

As a result of the assessment, PWP has determined that there were no changes in the Covered Distribution Facility list when compared to 2021. The same facilities identified before remain unchanged, with the facilities being: Substation J, Substation F, and Substation K.

During the past five years, PWP has actively and continually implemented several physical security improvements to our various distribution substations and other related facilities. These improvements include the addition of security cameras, lighting, razor wire, and additional chains to gates. These security improvements are part of PWP's ongoing effort in securing its electrical infrastructure from any potential physical security risks. Below is a summary of specific improvements during the past five years, and expected security enhancements in the near future:

a. Updates from PWP's 2021 Physical Security Plan
    - Add barbed wire to multiple stations
    - Reinforce chain-link fences and gates
    - Improvement of communication at multiple stations
        1. Improve security camera coverage
        2. Improve alerts for suspicious activity

b. Planned security enhancements
    - Seal unnecessary gates
    - Establish a regular camera cleaning schedule

B. GOAL OF PHYSICAL SECURITY PLAN

Ensuring the safety of its facilities is a top priority for PWP, and PWP prioritizes safety in all aspects of its design, operation, and maintenance practices. The overarching goal of this Physical Security Plan is to describe PWP's risk management approach toward distribution system physical security, with appropriate consideration of resiliency, impact, and cost.

PWP recognizes the importance of securing the safety and reliability of its electric system and, therefore, PWP offers the following in response to CPUC Decision 19-01-018.

C. DESCRIPTION OF PWP

Pasadena is an ethnically diverse community that is home to nearly 140 thousand people making it the 183rd-largest city in the United States. As the ninth largest city in Los Angeles County, Pasadena is one of the primary cultural centers in the San Gabriel Valley. The City covers approximately 23 square miles. There are over 100,000 jobs in a wide variety of industries in the City of Pasadena. Pasadena is the home to the Rose Bowl and annual Rose Parade.

D. RESULTS OF PHYSICAL SECURITY PLAN ASSESSMENT

After evaluating all distribution-level facilities in PWP's service territory, PWP decided to assess all twelve (12) distribution and receiving stations under its control. Out of these facilities, only three were identified and evaluated as Covered Distribution Facilities per the Joint IOU/POU Straw Proposal screening factors and are subject to the need for a risk assessment.

1. Substation J
2. Substation K
3. Substation F

For these three covered distribution facilities, PWP performed an evaluation of the risk of a potential physical attack and whether existing security and resiliency measures appropriately mitigate identified risk.

After determining the three candidate facilities for risk assessment, PWP utilized the same scoring method developed in the PWP's 2021 Physical Security Plan to determine the Risk Index for each of the covered facilities. The Security Index and Resiliency Index were developed by assigning a score between 0-10 in multiple categories as shown in the Risk Assessment section. After the total security and resiliency computation was processed, the Risk Index for each individual facility was calculated as follows:

$$Risk\ Index_{Facility\ i} = Security\ Index_{Facility\ i} * Resiliency\ Index_{Facility\ i}$$

PWP determined that the three Covered Distribution Facilities have sufficient existing security and resiliency measures in place to effectively mitigate the identified risks of a successful physical attack.

An independent evaluation was conducted by Radian Generation as the third-party reviewer, and subsequently reviewed and validated by the Pasadena Police Department, which serves as a qualified authority. The conclusion of the Radian Generation and Pasadena Police Department review was that PWP's Physical Security Plan – 2026 Update is deemed to be adequate.

II. BACKGROUND

On April 16, 2013, one or more individuals attacked equipment located within Pacific Gas and Electric Company's (PG&E) Metcalf Transmission Substation, ultimately damaging 17

transformers. These individuals also cut nearby fiber-optic telecommunication cables owned by AT&T and Level Three Communications. In response to the attack, the Federal Energy Regulatory Commission (FERC) directed the North American Electric Reliability Corporation (NERC) to develop new physical security requirements, resulting in the creation of CIP-014.

At the state level, Senator Jerry Hill authored SB 699 (2014), directing the CPUC to "consider adopting rules to address the physical security risks to the distribution systems of electrical corporations." In response to SB 699, the CPUC's Safety and Enforcement Division, Risk Assessment and Safety Advisory Section (RASA) prepared a white paper proposing a new requirement for investor-owned utilities (IOUs) and publicly owned utilities (POUs) to develop security plans that would identify security risks to their distribution and transmission systems and propose methods to mitigate those risks. The CPUC hosted a series of workshops to better understand the state of utility physical security protections and to seek input on refining their proposal.

In order to support a statewide improvement of how utilities address distribution level physical security risks, the California Municipal Utilities Association (CMUA), which is the statewide trade association for POUs, coordinated with the state's IOUs to develop a comprehensive Straw Proposal[1] (Joint IOU/POU Straw Proposal) for a process to identify at-risk facilities and, if necessary, develop physical security mitigation plans. As a member of CMUA, PWP staff participated in the development of the Joint IOU/POU Straw Proposal through a CMUA working group as well as through direct meetings with the IOUs. The Joint POU/IOU Straw Proposal set out a process for the following: (1) identifying if the utility has any high priority distribution facilities; (2) evaluating the potential risks to those high priority distribution facilities; (3) for the distribution facilities where the identified risks are not effectively mitigated through existing resilience/security measures, developing a mitigation plan; (4) obtaining a third party review of the mitigation plans; (5) adopting a document retention policy; (6) ensuring a review process established by the POU governing board; and (7) implementing information sharing protocols.

RASA filed a response to the Joint IOU/POU Straw Proposal that recommended various modifications and clarifications, RASA recommended that the utility mitigation plans include: (1) an assessment of supply chain vulnerabilities; (2) training programs for law enforcement and utility staff to improve communication during physical security events; and (3) an assessment of any nearby communication utility infrastructure that supports priority distribution substations.

In early 2019, the CPUC approved Decision (D.) 19-01-018, which adopted the Joint IOU/POU Straw Proposal as modified by the RASA proposal, with additional clarifications and guidance. D.19-01-018 clarified that where there is a conflict between the Straw Proposal and the RASA proposal, then it is the rule in the RASA proposal that shall apply.[2]

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[1] Straw Proposal available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M260/K335/260335905.PDF.

[2] D.19-01-018 at 43, footnote 58 ("Should there be any question of which shall predominate should there be any incongruity or conflict between a utility or SED RASA recommended rule, the SED RASA rule shall apply.").

D.19-01-018 asserted that the POUs should utilize the Physical Security Plan process described therein. PWP issued the 2021 Physical Security Plan which was adopted by City Council on June 14, 2021.[3] This report serves as an update to PWP's 2021 Physical Security Plan to reflect on PWP's existing commitment to safety and to protecting its ratepayers' investment by taking reasonable and cost-effective measures in an effort to safeguard key assets of its distribution system.

III. PLAN DEVELOPMENT PROCESS

A. PHYSICAL SECURITY PRINCIPLES

PWP has taken a risk-based approach toward distribution system physical security, with appropriate considerations of resiliency, impact, and cost. This approach, consistent with the Joint IOU/POU Straw Proposal, identified several principles to guide the development of PWP's security plan. These principles are the following:

1. Distribution systems are not subject to the same physical security risks and associated consequences, including threats of physical attack by terrorists, as the transmission system.

2. Distribution utilities will not be able to eliminate the risk of a physical attack occurring, but certain actions can be taken to reduce the risk or consequences, or both, of a significant attack.

3. A one-size-fits-all standard or rule will not work Distribution utilities should have the flexibility to address physical security risks in a manner that works best for their systems and unique situations, consistent with a risk management approach.

4. Protecting the distribution system should consider both physical security protection and operational resiliency or redundancy.

5. The focus should not be on all Distribution Facilities, but only those that risk dictates would require additional measures.

6. Planning and coordination with the appropriate federal and state regulatory and law enforcement authorities will help prepare for attacks on the electrical distribution system and thereby help reduce or mitigate the potential consequences of such attacks.

B. PHYSICAL SECURITY PLAN DEVELOPMENT PROCESS

PWP utilizes a multi-step process to develop a Security Plan that is consistent with the Joint IOU/POU Straw Proposal and D.19-01-018. The relevant six steps of that process are the following:

STEP 1: ASSESSMENT/PLAN DEVELOPMENT

[3] Adoption of 2021 PWP Utility Security Plan at: https://ww2.cityofpasadena.net/2021%20Agendas/Jun_14_21/AR%208.pdf

PWP prepares a Draft Physical Security Plan through the process set forth in Steps 1A, 1B, and 1C.

STEP 1A: IDENTIFY COVERED DISTRIBUTION FACILITIES

PWP evaluates all distribution-level facilities in its service territory that are subject to its control to determine if any of these facilities meet D.19-01-018's definition of a Covered Distribution Facility using the seven factors identified in the Joint IOU/POU Straw Proposal.

STEP 1B: PERFORM RISK ASSESSMENT

For every individual Covered Distribution Facility identified pursuant to Step 1A, PWP performs an evaluation of the potential risks associated with a successful physical attack on that facility, and whether existing grid resiliency, back-up generation, and/or physical security measures appropriately mitigate identified risks.

STEP 1C: DEVELOP MITIGATION PLAN

If there are any individual Covered Distribution Facilities where the Risk Assessment performed pursuant to Step 1B finds that the existing mitigation and/or resiliency measures do not effectively mitigate the identified risks, then PWP will develop a Mitigation Plan for that Covered Distribution Facility. The Mitigation Plan will use a risk-based approach to select reasonable and cost-effective measures that can either be security focused (*e.g.*, walls or alarms) or resiliency focused (*e.g.*, adequate spare parts).

STEP 2: INDEPENDENT REVIEW

For every Physical Security Plan cycle, PWP will document the results of the identification process, risk assessment, and Mitigation Plan development performed pursuant to Steps 1A, 1B, and 1C. This documentation in combination with narrative description in Section IX, constitutes PWP's Draft Physical Security Plan. The Draft Physical Security Plan is submitted to a Qualified Third Party for Independent Review. The Qualified Third-Party Reviewer will then issue an evaluation that identifies any potential deficiencies in the Draft Physical Security Plan as well as recommendations for improvements. PWP will then modify its plan to address any identified deficiencies or recommendations or will document the reasons why any recommendations were not adopted. The combination of the Draft Physical Security Plan, the non-confidential conclusions of the Qualified Third Party Reviewer, and PWP's responses to the Qualified Third Party Review will constitute PWP's Physical Security Plan.

STEP 3: VALIDATION

PWP will submit its Physical Security Plan to a qualified authority for review. Such entity will provide additional feedback and evaluation of PWP's Physical Security Plan and, to the extent that this entity is authorized, deem the Physical Security Plan as adequate.

STEP 4: ADOPTION

PWP's Physical Security Plan will be presented to and adopted by Pasadena City Council at a public meeting.

STEP 5: MAINTENANCE

PWP will refine and update the Utility Security as appropriate and as necessary to preserve plan integrity.

STEP 6: REPEAT PROCESS

PWP will repeat this six-step process at least once every five years.

IV. IDENTIFICATION OF COVERED DISTRIBUTION FACILIITES (STEP 1A)

As described in Section III, Step 1A of the Physical Security Plan process involves assessing all distribution-level facilities that are subject to the control of PWP to determine which facilities are Covered Distribution Facilities subject to the need for a risk assessment. This Section describes the factors that PWP used to evaluate its distribution facilities and the results of its evaluation.

A. IDENTIFICATION FACTORS

The Joint IOU/POU Straw Proposal defines seven screening factors to determine if a facility is a Covered Distribution Facility. Some factors require additional definitions and/or clarifications in order to be applied to PWP's facilities. The following Table provides the Joint IOU/POU Straw Proposal's Factors as modified/clarified by PWP.

Table IV-1: Identification Factors

Factor	Joint IOU/POU Straw Proposal Description	Additional Clarification
1	Distribution Facility necessary for crank path, black start or capability essential to the restoration of regional electricity service that are 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	Substation F was considered critical for a crank path and black start of PWP generators feeding the region.
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)	City of Pasadena does not house any military facility whether it is for the state or national army.
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)	An installation provides "regional drinking water supplies and wastewater services" if it is the primary source of drinking water supply or wastewater services for over 15,000 customer accounts for an area with a population of over 100,000. Substation J was considered critical for water facilities in case of prolonged outages.
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)	PWP defines "regional public safety establishment" as any of the following: (1) Headquarters of a major police or fire department serving 1.5 million population with at least 1,000 sworn officers; (2) County Sheriff's Department Headquarters; (3) County Emergency Operations Center; (4) County/State Fire headquarters; (5) a California State Prison; (6) a United States Penitentiary; or (7) a Federal Correctional Institute. City of Pasadena has its own Police and Fire departments. The Police department has 230 sworn officers stationed at four locations, including the 911 Dispatch Center. The Fire department has Eight Stations serving the City of Pasadena and adjacent neighborhoods. No Federal, State

		or County law enforcement offices are within the borders of Pasadena. Substation K was considered critical for emergency services.
5	Distribution Facility that serves a major transportation facility (may include International Airport, Mega Seaport, other air traffic control center, and international border crossing)	In addition to the facilities listed in the Joint IOU/POU Straw Proposal, PWP defines a "major transportation facility" as any transportation facility that has (1) an average of 600 or more flights per day; or (2) over 50,000 passengers arriving or departing per day. None of the above facilities exist within the borders of Pasadena. However, PWP serves six LA Metro A Line train stations (none of them is a hub or a major station). The A Line transports less than 20,000 passengers a day throughout 22 stations (from Chinatown to Pomona including Pasadena).
6	Distribution Facility that serves as a Level 1 Trauma Center as designated by the Office of Statewide Health Planning and Development.	City of Pasadena serves only one Level 2 Trauma Center within its boundaries. No other Trauma Center is within the service area of Pasadena Water and Power. No single distribution facility was identified as critical for the operation of the Level 2 Trauma Center since multiple distribution facilities are providing service/back up to the facility.
7	Distribution Facility that serves over 60,000 meters	None of PWP's Distribution facilities directly serve more than 60,000 customers each. PWP serves approximately 68,000 meters. However, Substation J was considered critical because the main function of this facility is to distribute power to the other facilities. No customers are being served directly from this facility.

B. IDENTIFICATION ANALYSIS

In performing this identification analysis, PWP assessed all distribution level facilities under its exclusive control. PWP is the only entity responsible for operation and maintenance for these twelve (12) distribution and receiving facilities. Of these 12 facilities, three facilities fall within at least one of the categories listed above. These three facilities were evaluated as Covered Distribution Facilities per the Joint IOU/POU Straw Proposal screening factors and are subject to the need for a risk assessment.

Table IV-2 summarizes the results of PWP's identification analysis. If the final score of any facility is greater than or equal to one (1), then PWP considers this facility as Covered Distribution Facility. PWP conducted a Risk Assessment analysis for these facilities as described in Section V.

Table IV-2: Identification Scores of Covered Distribution Facilities

Substation Name	1. Crank Path, Black Start	2. Military Installation	3. Regional Drinking Water/ Wastewater Services	4. Safety Establishment (Police/ Fire)	5. Transportation Facility	6. Trauma Center Level 1 / Hospitals	7. Over 60,000 Meters	Identification Score
Substation A								0
Substation B								0
Substation C								0
Substation D								0
Substation E								0
Substation F	Yes							1
Substation G								0
Substation H								0
Substation I								0
Substation J			Yes				Yes	2
Substation K				Yes				1
Substation L								0

V. RISK ASSESSMENT (STEP 1B)

A. METHODOLOGY

Pursuant to the process identified in the Joint IOU/POU Straw Proposal and D.19-01-018, PWP will assess the potential risks associated with a successful physical attack on each of the Covered Distribution Facilities identified in Section IV above. For purpose of this analysis, a physical attack is limited to the following: (1) theft; (2) vandalism; and (3) discharge of a firearm. A "successful physical attack" is limited to circumstances where a theft, vandalism, and/or the discharge of a firearm has directly led to the failure of any elements of the Covered Distribution Facility that are necessary to provide uninterrupted service to the specific load identified in Section IV.

To perform this risk analysis, PWP evaluates the relative risk that (1) a physical attack on a Covered Distribution Facility will be successful considering the protective measures in place; or (2) that the impacts of a successful attack will be mitigated due to resiliency and other measures in place.

B. MITIGATION MEASURES

D.19-01-018 identifies the specific mitigation measures that a utility should consider when performing this risk analysis. The following table lists these mitigation measures and provides PWP's additional clarifications that are necessary to apply these measures to PWP's territory.

Table V-1: Mitigation Measures

Measure	D.19-01-018 Description	Additional Clarification
1	The existing system resiliency and/or redundancy solutions (e.g., switching the load to another substation or circuit capable of serving the load, temporary circuit ties, mobile generation and/or storage solutions).	There are switching opportunities available on the substation level or distribution level. Most circuits have ties, often to other distribution substations.
2	The availability of spare assets to restore a particular load.	PWP maintains a spare parts inventory.
3	The existing physical security protections to reasonably address the risk.	Pasadena Police Department (PPD) surveyed PWP distribution facilities in 2026 and provided commendations and recommendations. PWP has launched an upgrade project to improve security at each of the Covered Distribution Facilities per PPD recommendations.
4	The potential for emergency responders to identify and respond to an attack in a timely manner.	Each facility is evaluated based on the likelihood that a law enforcement officer would generally be able to arrive at the Covered Distribution Facility within 15 minutes of a report from the public of a break-in or attack, or of PWP notifying law enforcement agency of a physical security incident/attack at the facility.

5	Location and physical surroundings, including proximity to gas pipelines and geographical challenges, and impacts of weather.	PWP evaluated this element based on the proximity of the Covered Distribution Facility to populated areas and the extent to which the interior of the facility is shielded from view and access due to walls, vegetation, or other physical obstructions. PWP removed or is in the process of removing vegetation that may facilitate breaching into any of the distribution facility.
6	History of criminal activity at the Distribution Facility and in the area.	PWP evaluated the property crime rates in the immediate vicinity of the Covered Distribution Facility and compared those crimes rates to property crime rates for the county and the state to determine if the area is subject to a higher than average incidence of property related crimes.
7	The availability of other sources of energy to serve the load (e.g., customer owned back-up generation or storage solutions).	Many critical customers have backup generators.
8	The availability of alternative ways to meet the health, safety, or security.	No additional clarification.
9	Requirements served by the load (e.g., back up command center or water storage facility).	No additional clarification.

C. RISK ASSESSMENT

Based on the process described in the Joint IOU/POU Straw Proposal and the direction provided in D.19-01-018, PWP has determined that of the three Covered Distribution Facilities identified in Section IV, the existing programs and measures effectively mitigate the risks of a physical attack for those Covered Distribution Facilities.

This section provides an outline for PWP's methodology to address existing risk in the distribution facilities. The framework will enable PWP to assign an individual score for each of its covered facilities, which can later be used to prioritize maintenance activities and capital expenditures in terms of physical security of distribution facilities.

A Security evaluation along with a Resiliency assessment provides the basis for a Risk-based approach, where Resiliency is related to the ability of PWP system/facility to recover from an incident, Security is associated with the present deterrents to prevent any intruder(s)/attacker(s) from breaching the facility. Risk is measured as the combination of these two metrics.

The objective of developing this methodology is to properly identify and rate the security distribution facilities that may represent the greatest risk to the PWP power system. In order to carry out this process and achieve valuable results, accurate and updated security data is required. Even though every component of the electric system will always have an inherent risk of failure, it is essential for PWP to understand the assets risk level, becoming aware if any failure instance is predictable and have reasonable spare parts to service assets in case of failure.

D. PROCESS

The key steps to develop the algorithm are summarized below:

- Collect, update, and prepare the security data for every Covered Distribution Facility under analysis.
- Assign factors and modifiers for Security Index calculation.
- Compute the security index based on physical and operating conditions.
- Identify and quantify impact and consequences of loss/failure for each facility.
- Calculate Resiliency Index based on loss/failure effects and impacts.
- Compute Risk Index for each Covered Distribution Facility.
- Identify the facilities in the highest risk category.
- Schedule upgrade, retrofit or maintenance work, projecting required funds on annual basis, and preparing Capital Improvement Programs (CIPs).

This methodology can be applied to any distribution facility and the analysis is expected to produce useful results only if accurate and updated system data is utilized.

1. SECURITY INDEX

Physical Security is accomplished by performing an assessment of the covered facility and the surrounding premises. Security Index is a measure of precautions taken to deter intruders and restrict their visibility or ability to breach into the facilities, including service interruption to critical customers, and adverse impact on the safety of the public and PWP staff.

The Security Index can be explained as a numerical representation of the facility importance for normal system operation, and the impact to the system if that facility is lost due an attack, theft or vandalism. This metric remains constant until factors affecting it change. Table V-1 provides details on different factors that impact the calculated security index for each facility as modified/clarified by PWP. For simplicity, each security measure was given an equally-weighted score on 10-point scale based on conditions related to this measure as detailed in the following tables.

Security Index results are shown in Table V-2: Security Index for Covered Distribution Facilities. The Security Index for each covered facility is calculated by subtracting the average score from perfect 10 score.

Measure: Fences/ Walls

Fence/Walls Condition	Score
Chain Link Fence Alone	5 points
Chain Link Fence with Outriggers or Barbed Wire	8 points
Masonry/Brick Wall Alone	8 points
Masonry/Brick Wall with Outriggers or Barbed Wire	10 points

Measure: Gates/ Controlled Entry

Gates Condition	Score
Chain Link Gate Alone	5 points
Metal Gate Alone	10 points

Measure: Vegetation Control / Perimeter Clearance

Vegetation/Perimeter Control Condition	Score
No	0 points
Partially	5 points
Yes	10 points

Measure: Electronic Surveillance

Surveillance Condition	Score
No	0 points
Yes	10 points

Measure: Illumination/Motion Sensors

Illumination Condition	Score
No	0 points
Yes	10 points

Measure: Parking Control/Barriers

Parking Control/Barriers Condition	Score
No	0 points
Partially	5 points
Yes	10 points

Measure: Criminal History in Facility Surroundings

Criminal History Condition	Score
Above Average	0 points
At Average	5 points
Below Average	10 points

Measure: Existing Gas Lines /Location Vulnerability

Existing Gas Lines /Location Vulnerability Condition	Score
Existing Gas Lines / Location is Vulnerable	0 points
Existing Gas Lines / Location is not Vulnerable	5 points
No Existing Gas Lines / Location is Vulnerable	5 points
No Existing Gas Lines / Location is not Vulnerable	10 points

Measure: Required Time for a police car to reach any Substation

Time required for a Police car to reach any Substation Condition	Score
More than 15 minutes	0 points
Within 10 minutes	5 points
Within 5 minutes	10 points

Measure: Presence of Critical Customers

Presence of Critical Customers Condition	Score
Two or more Critical Customers	0 points
One Critical Customer	5 points
No Critical Customers	10 points

2. RESILIENCY INDEX

The Resiliency assessment of electrical facilities is associated with the ability of the distribution system to minimize the negative impacts of infrequently occurring adverse events such as a terrorist attack, theft or vandalism. Resiliency Index is a measure of preparations taken to restore operations of the electric system/circuit due to any incident at the Covered Distribution Facilities, including service interruption to critical customers that may impact on the safety of the public or PWP staff.

The Resiliency Index can be explained as the numerical representation of the facilities ability to recover if that facility is lost or damaged due to an attack, theft or vandalism. This metric remains constant until factors affecting it change. Table V-1Table V-3 provides the factors that impact the calculated resiliency index for each facility as modified/clarified by PWP. For simplicity, each resiliency measure was given an equally-weighted score on 10-point scale based on conditions related to this measure as detailed in the following tables.

Resiliency Index results are shown in Table V-3: Resiliency Index for Covered Distribution Facilities. The Resiliency Index for each covered facility is calculated by subtracting the average score from perfect 10 score.

Measure: Circuit Ties within Substation Services Areas

Ties with Adjacent Circuits from Same Substation	Score
One Tie	5 points
Two Ties	8 points
Three or more Ties	10 points

Measure: Circuit Ties within Adjacent Substation Services Areas

Ties with Adjacent Circuits from Different Substation	Score
One Tie	5 points
Two Ties	8 points
Three or more Ties	10 points

Measure: Availability of Mobile /Free Standing Transformer

Availability of Mobile /Free Standing Transformer	Score
No	0 points
Yes	10 points

Measure: Availability of Back up Generation / Battery Storage to Serve Critical Customers

Availability of Back up Generation / Battery Storage to Serve Critical Customers	Score
No	0 points
Yes	10 points

Measure: Availability of Contracts with Vendors for Engineering Services or Spare Parts

Availability of Contracts with Vendors for Engineering Services and/or Spare Parts	Score
No Contracts for Engineering Services nor Spare Parts	0 points
Availability of Contracts for either Engineering Services or Spare Parts	5 points
Availability of Contracts for both Engineering Services or Spare Parts	10 points

Measure: Availability of PWP Emergency Responders

Availability of PWP Emergency Responders	Score
No	0 points
Yes	10 points

Measure: Availability of Mutual Aid Agreements on Local, State and National Levels

Availability of Mutual Aid Agreements	Score
Local Level	5 points
Local and State Levels	8 points
Local, State and National Levels	10 points

Measure: Ability to Remotely Isolate/ Restore Services

Ability to Remotely Isolate/ Restore Services	Score
None	0 points
Partially	5 points
All equipment	10 points

Measure: Ability to Provide Services Under N-1 Conditions

N-1 Reliability	Score
No	0 points
Partially – Excluding periods of extreme heatwaves	5 points
All Times including periods of extreme heatwaves	10 points

Measure: Presence/Readiness of Backup Dispatch /Command Center

Presence of Critical Customers Condition	Score
No	0 points
Partially	5 points
All Times including periods of emergency state	10 points

Table V-2: Security Index for Covered Distribution Facilities

Substation Name	Fences/ Walls	Gates	Vegetation Control/Perimeter Clearance	Electronic Surveillance	Illumination / Motion Sensors	Parking Controls /Barriers	Criminal History	Gas Lines /Location Vulnerability	Time for PD to reach any Substation	Critical Customers	Security Index
Substation F	8	6	8	10	10	5	2	5	5	0	4.10
Substation J	8	8	7	10	10	5	7	5	5	0	3.50
Substation K	8	8	5	10	10	5	4	5	5	6	3.40

Table V-3: Resiliency Index for Covered Distribution Facilities

Substation Name	Ties Within Substation Service Area	Ties with Circuits from an Adjacent Substation	Mobile /Free Standing Transformer	Back up Generation / Battery Storage	Vendors on Contract (Parts or Services)	PWP Emergency Responders	Mutual Aid Agreements	Ability to isolate/ restore remotely	N-1 Reliability	Backup Dispatch /Command Center	Resiliency Index
Substation F	10	10	0	0	5	10	10	0	10	10	3.50
Substation J	10	0	0	0	5	10	10	0	10	10	4.50
Substation K	10	10	0	0	5	10	10	0	10	10	3.50

3. RISK INDEX

After the Security Index and Resiliency Index computation process is finished, a Risk Index for each individual facility is calculated, as follows:

$$Risk\ Index_{Facility\ i} = Security\ Index_{Facility\ i} * Resiliency\ Index_{Facility\ i}$$

Asset management systems usually represent risk calculation in a matrix, where the horizontal and vertical axis represent the Resiliency and Security scores between 1 and 10, respectively. The cells inside the matrix are the resulting risk index between 1 and 100, as shown Table V-4.

Table V-4: Distribution Facility Risk Index Matrix (Security x Resiliency)

Security Index \ Resiliency Index	1	2	3	4	5	6	7	8	9	10
10	10	20	30	40	50	60	70	80	90	100
9	9	18	27	36	45	54	63	72	81	90
8	8	16	24	32	40	48	56	64	72	80
7	7	14	21	28	35	42	49	56	63	70
6	6	12	18	24	30	36	42	48	54	60
5	5	10	15	20	25	30	35	40	45	50
4	4	8	12	16	20	24	28	32	36	40
3	3	6	9	12	15	18	21	24	27	30
2	2	4	6	8	10	12	14	16	18	20
1	1	2	3	4	5	6	7	8	9	10

After performing the risk calculation, the covered distribution facilities under analysis are grouped in categories based on their risk scores, as depicted in Table V-5.

Table V-5: Risk Categories

Description	Color	Risk Index Interval
Very High Risk Facility	Red	76-100
High Risk Facility	Brown	50-75
Medium Risk Facility	Yellow	26-50
Low Risk Facility	Green	1-25

Facilities inside the red category of the Risk Matrix –if any- will be addressed first. The Risk Index for our Covered Distribution Facilities are listed Table V-6.

Table V-6: Risk Index for Covered Distribution Facilities

Substation Name	Resiliency Index "A"	Security Index "B"	Risk Index (A x B)	Overall Physical Security Result
Substation F	3.50	4.10	**14.35**	**Low Risk Facility - Passed**
Substation J	4.50	3.50	**15.75**	**Low Risk Facility - Passed**
Substation K	3.50	3.40	**11.90**	**Low Risk Facility - Passed**

Based on the results in Table V-6, the existing security and resiliency measures at the Covered Distribution Facilities are sufficient to effectively manage the identified risks of physical attack, theft, and vandalism. Furthermore, as discussed in Section VI, planned upgrades to improve security mitigation measures are being considered for these sites.

VI. DISTRIBUTION FACILITIES UPGRADE/REPLACEMENT PLANS (STEP 1C)

Pursuant to the process identified in the Joint IOU/POU Straw Proposal and D.19-01-018, PWP has determined that for the Covered Distribution Facilities that are subject to PWP's control, the existing mitigation measures do effectively reduce the risk of a physical security attack. This section of the Plan briefly describes the proposed additional upgrade and/or replacement projects for each of the Covered Distribution Facilities and provides updates to the previously recommended upgrade projects.

Below, in Table VI-1, is an update to the list of proposed upgrades from PWP's 2021 Physical Security Plan.

Table VI-1: 2021 Security Mitigation Project Update

#	Facility Name	Project Status (as of 07/20/2026)	Scope of Project	Scope Update (as of 07/20/2026)
1	Substation J	Completed.	1. Enhance lighting system and remote surveillance 2. Add a keypad entry to control house 3. Add lights point upward to distract attackers 4. Enhance fencing and lighting at the southwest corner of the facility	1. Lighting added. 2. Not found to be needed. 3. Not found to be needed. 4. Not found to be needed.
2	Substation F	Completed.	1. Enhance lighting system and remote surveillance 2. Enhance or add more padlocks to the facility gates 3. Enhance the fences at the west side of the facility 4. Add the privacy screens wherever missing	1. Lighting added. 2. Double chained facility gates completed 6/2021. 3. Added barb wires on top of west side wall, completed 10/2022. 4. Privacy screens added, completed 10/2022.
3	Substation K	Completed.	1. Enhance lighting system and remote surveillance 2. Control/trim vegetation on the west side of the facility 3. Enhance the fencing of existing walls at the west side of the facility	1. Lighting added. 2. Vegetation trimmed, completed 06/24/2021. 3. Barb wire has been added, completed 9/2021

The following is a list of proposed security enhancement projects sorted by facility. In Table VI-2, all the previously determined Covered Distribution Facilities are included. These projects mainly aim to reinforce the existing security at the stations by doing the proper maintenance to better utilize the existing security measures in place, we also plan to seal any unused gates to prevent unauthorized entrance to the sites, and to secure any tools in case they would present an opportunity to assist any intruder.

Table VI-2: Security Mitigation Projects

#	Facility Name	Estimated Completion for Proposed Projects/Schedule	Scope of Project
1	Substation J	FY2027 - FY2028	1. Camera cleaning schedule
2	Substation F	FY2027 – FY2028	1. Seal unused gates. 2. Chain up ladders when not in use. 3. Camera cleaning schedule
3	Substation K	FY2027 – FY2028	1. Camera cleaning schedule 2. Repair barbed wire

VII. INDEPENDENT EVALUATION AND RESPONSE (STEP 2)

A. REQUIREMENTS FOR A QUALIFIED THIRD-PARTY REVIEW

D.19-01-018 specifies the following criteria for a Qualified Third-Party Reviewer:

Independence: A Qualified Third-Party Reviewer cannot be a division of the POU. A governmental entity can select as the third-party reviewer another governmental entity within the same political subdivision, so long as the entity has the appropriate expertise, and is not a division of the POU that operates as a functional unit, i.e., a municipality could use its police department as its third-party reviewer if it has the appropriate expertise.

Adequate Qualifications: A Qualified Third Party Reviewer must be an entity or organization with electric industry physical security experience and whose review staff has appropriate physical security expertise, which means that it meets at least one of the following: (1) an entity or organization with at least one member who holds either an ASIS International Certified Protection Professional (CPP) or Physical Security Professional (PSP) certification; (2) an entity or organization with demonstrated law enforcement, government, or military physical security expertise; or (3) an entity or organization approved to do physical security assessments by the CPUC, Electric Reliability Organization, or similar electrical industry regulatory body.

B. IDENTIFICATION OF THIRD-PARTY REVIEWER

PWP has selected Radian Generation as its Third-Party Reviewer. Radian Generation has staff members who qualify to conduct security plan reviews per requirements and qualifications stated above.

The independent review was conducted by the Senior Compliance and Risk Manager at Radian Generation. The reviewer has more than three years of experience managing and supporting compliance and risk programs, including the review of program documentation, risk assessments, internal controls, and mitigation activities.

C. PUBLIC RESULTS OF THIRD-PARTY EVALUATION

An independent evaluation was conducted by the Senior Compliance and Risk Manager at Radian Generation. Radian found the assessment methodology to be sufficient and the results to be accurate and consistent with good industry practices for physical security of critical infrastructure.

D. PWP RESPONSE

PWP accepts the evaluation results provided by the independent third-party evaluator at Radian Generation.

VIII. VALIDATION (STEP 3)

A. SELECTION OF A QUALIFIED AUTHORITY

PWP selected the Pasadena Police Department (PPD) as the qualified authority by contacting and screening various sections within the department to find a suitable candidate. The PPD assigned staff to review and validate this Plan. The selection was based on the PPD staff's expertise and knowledge of physical security and security based environmental design.

B. RESULTS OF THE QUALIFIED AUTHORITY REVIEW

PWP and PPD staff toured 12 out of 12 facilities and conducted inspections of current physical security measures and designs. The inspection included the current configuration of security cameras, fencing, ingress and egress points and overall security design.

PPD validated the Physical Security Plan and provided minor recommendations to complete repairs to enhance existing fencing, establish periodic camera cleaning, and seal any unnecessary gates for each of the Covered Distribution Facilities.

C. PWP RESPONSE TO THE QUALIFIED AUTHORITY REVIEW

PWP accepts PPD's recommendations and is currently in the process of implementing them. A list of recommended enhancements is provided in Section VI.

IX. NARRATIVE DESCRIPTIONS FOR PHYSICAL SECURITY PLAN

The CPUC order has additional requirement that the utility mitigation plans must include- a detailed narrative explaining how the utility has:

A. 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;
B. 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; and,
C. A preventative maintenance plan for security equipment to ensure that mitigation measures are functional and performing adequately.

A. ASSET MANAGEMENT PROGRAM

Distribution Substation physical security is a growing concern for many utilities because each of the distribution substations is the heart of a service area of the utility. To effectively secure substations, PWP needs visibility and control over all assets at each distribution substations.

PWP currently utilizes an asset management application. This software solution for achieves asset performance management objectives and provides PWP with a focused solution for risk management, predictive maintenance and other asset management activities that maximize equipment lifetimes. PWP also utilizes a separate warehouse inventory management system. PWP is currently developing a new asset management system Enterprise Asset Management (EAM) that will replace the current system for asset management and scheduling for maintenance of PWP's equipment.

This asset management program helps PWP in tracking and locating spare parts stock, ensuring availability and the rapid dispatch of available spare parts of substation security equipment. Having an informed understanding of the performance, configuration, and capabilities of each substation (and the supported feeders) across the complete lifecycle of PWP assets will improve not only our operational awareness but each substation's security. The asset management program helps PWP identify the risks earlier for better asset maintenance and replacement cycles.

PWP monitors the operational condition of the asset management program activities including activities related to substations and their security systems and does timely repairs if a problem occurs. The security systems are upgraded as technology improves using the latest security standards based on the assessment and recommendations of security experts. A PWP information security officer administers the security systems plan that includes backups, staff training, and user administration.

B. WORKFORCE TRAINING AND RETENTION PROGRAM

One key role of the City of Pasadena Human Resources Department (HR) is to help PWP find the qualified workers we need. HR offers services that may include electronic job orders and job fairs, use of private interview space, background checks and customized screening, and regular referrals of qualified candidates. City of Pasadena works mainly with Government Jobs to find diverse candidates – such as youth, older workers, individuals with disabilities, and other untapped sources of workers.

The following paragraphs summarize Recruitment, Training and Retention Activities and Programs as conducted by the City of Pasadena.

Recruitment

The following are the most common steps taken by City of Pasadena during the hiring process of new employees. It is a step-by-step process for hiring a new employee, whereby PWP identifies its talent needs, recruits from its talent pool and eventually hires the most qualified candidates.

1. Identify the hiring need
2. Write/Update the job description
3. Advertise and Recruit the Position
4. Review Applications and Initial Screening
5. Interviews, Applicant Assessment and Selection
6. Background and Reference checks
7. Hiring Best Qualified Candidate(s)

Training, Education and Up-Skilling

Building the skills and competencies of PWP workforce is essential to ensuring the swift and effective response to make (emergency) repairs in short order throughout PWP's service area using available spare parts and inventory. PWP recognizes that training for individuals must align with the needs of its business in the electric industry. Here are several ways that PWP supports this need for training to its workforce:

- Provides access to training and education programs for all employees. The programs are available through universities, colleges and trade or technical schools; LA Trade Tech through the Apprenticeship Program is a good example.
- Offers tuition reimbursement to qualified programs and certifications (not covered in programs mentioned above in the previous point) to further their education by sharing, or in some cases, covering the expenses.
- Provides a formally approved apprenticeship Programs in Dispatching, Electronics/communications, Electrical/Meter Test, Electrical Construction and Electrical Distribution for interested staff to become a Test Technician or Electrical Mechanic or Electrical Distribution Mechanic. The Power Plant established a new apprenticeship program that attracted hundreds of interested applicants. All apprenticeships are State certified/Union certified.
- New employees are offered shadowing and cross training with a mix of instruction and on-the-job training.
- PWP provides updated procedure manuals/desk reference materials/task manuals for key positions and job aids.

- PWP offers two Leadership training through SCPPA, Linkedin Learning, and internal City trainings

Retention

The success or failure of any organization is increasingly determined by its ability to keep its best people. Therefore, building the skills and competencies of PWP workforce may not be enough to retain these highly skilled employees. To overcome this obstacle, PWP took tangible steps in that direction:

- Produce and update the existing succession plan (career plan) to provide a clear path for career development and advancement.
- Continuously adjust employee compensation to ensure competitiveness with comparable positions across the electric industry. PWP also offers extra incentive (pay) for certifications (crane operators/welders) for skills that are above job duties but benefit the utility.
- PWP periodically recognizes outstanding employees and offer awards/certificates of appreciations.
- Provide a constructive annual performance evaluation that highlights achievements and goals for individual development.
- Provides (refresher) training services to incumbent workers and developing on-the-job and workplace training
- Supporting employee retention by offering services such as mentoring programs to individuals engaged in training

C. PREVENTATIVE MAINTENANCE PLAN

Time-based Preventive Maintenance

PWP's time-based preventive maintenance approach involves setting up a schedule to perform regular inspections on pieces of equipment, especially those that would have a severe impact on distribution in the event of a breakdown. Currently, PWP performs monthly inspections of all electrical facilities. The monthly process involves inspecting equipment and substation physical security integrity including:

- Gate access
- Perimeter fencing
- Housekeeping and landscaping
- Bonding of equipment
- Wire tray gates
- Security lighting and cameras
- Station service automatic throw-over switch

-END-