WILDFIRE MITIGATION PLAN

December 2019

LADWP Wildfire Mitigation Plan
Version 1.0
December 9, 2019

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1. OVERVIEW

1.1. POLICY STATEMENT

The Los Angeles Department of Water & Power (LADWP) is a municipal utility serving the City of Los Angeles (City) and the Owens Valley, California. It exists under and by virtue of the Charter of the City of Los Angeles enacted in 1925. LADWP is a vertically-integrated utility that owns and operates the majority of its generation, transmission, and distribution systems. LADWP's mission is to provide its customers and the communities it serves safe, reliable and cost-effective water and power in a customer-focused and environmentally responsible manner. The LADWP Wildfire Mitigation Plan (Plan) was developed in alignment with our mission statement.

1.2. THE WILDFIRE MITIGATION PLAN

Wildfires, a longstanding threat to California, are increasing in intensity and frequency due to climate change, wild-and-urban interface, human activity, and development of wildlands. The significant threat posed by wildfires to public safety has resulted in a major change in the State of California's fire prevention approach where a year round wildfire mitigation plan is required by electrical utilities.

In response to this growing threat, LADWP has developed a Plan consistent with State of California's Senate Bill 901 (SB901) with a sense of urgency to safeguard and improve public safety. The Plan will serve as a call for renewed approach by all stakeholders in the implementation of measures taken to prevent, mitigate, and respond to wildfire risks.

In addition, the Plan describes the steps that LADWP is taking to mitigate the threat of wildfires caused by electrical lines and equipment. The Power System Executive office is responsible for the oversight and implementation of this Plan. This Plan is subject to review by the LADWP Board of Water and Power Commissioners (Board) and is implemented by those identified in this Plan under Section 2. Roles and Responsibilities. This plan complies with California state law that requires publicly owned electric utilities "to prepare a wildfire mitigation plan by January 1, 2020, and annually thereafter."

The Objectives of this Plan are to:

ENSURE PUBLIC SAFETY BY MINIMIZING SOURCES OF IGNITION

The primary goal of this Plan is to ensure the safety of the customers and communities LADWP serves within the City of Los Angeles and Owens Valley by minimizing the probability that LADWP's transmission and distribution system might become the original or contributing source of ignition for wildfires. Over the years, LADWP has evaluated the

prudent and cost-effective improvements to its physical assets, operations, and training that can help to meet this objective, and since 2008, LADWP has implemented those changes consistent with this evaluation. LADWP will continuously evaluate any current and future prudent and cost-effective improvements to ensure that they have been and will be implemented.

IMPROVE RESILIENCY OF THE GRID

The second goal of this Plan is to improve the resiliency of the electric grid. As part of this Plan, LADWP continuously assesses new industry practices and technologies that will reduce the likelihood of an interruption in service and improve the restoration of service.

MAXIMIZE EFFICIENCY AND IMPROVE PROGRAMS AND PROTOCOLS

The final goal for this Plan is to measure the effectiveness of specific wildfire mitigation strategies. Where a particular action, program, or protocol is determined to be potentially unnecessary or ineffective, LADWP will assess whether a modification or replacement is merited. This Plan will also help determine if more cost-effective measures would produce the same or improved results.

This Plan includes the following elements:

- Objectives of the Plan
- Roles and responsibilities for carrying out the Plan
- Identification of key wildfire risks and risk drivers
- Description of wildfire prevention, mitigation, and response strategies and programs
- Restoration of service
- Community outreach and education
- Metrics for evaluating the performance of the Plan and identifying areas for improvement
- Review and validation of the Plan
- Provide considerations for future improvements to further mitigate wildfire risk

2. ROLES AND RESPONSIBILITIES

This section describes the roles and responsibilities required to accomplish the goals of this Plan. Further details for the groups that are related to the implementation of this Plan are provided in Section 2.2. through Section 2.13

2.1. LADWP WILDFIRE ORGANIZATINAL CHART

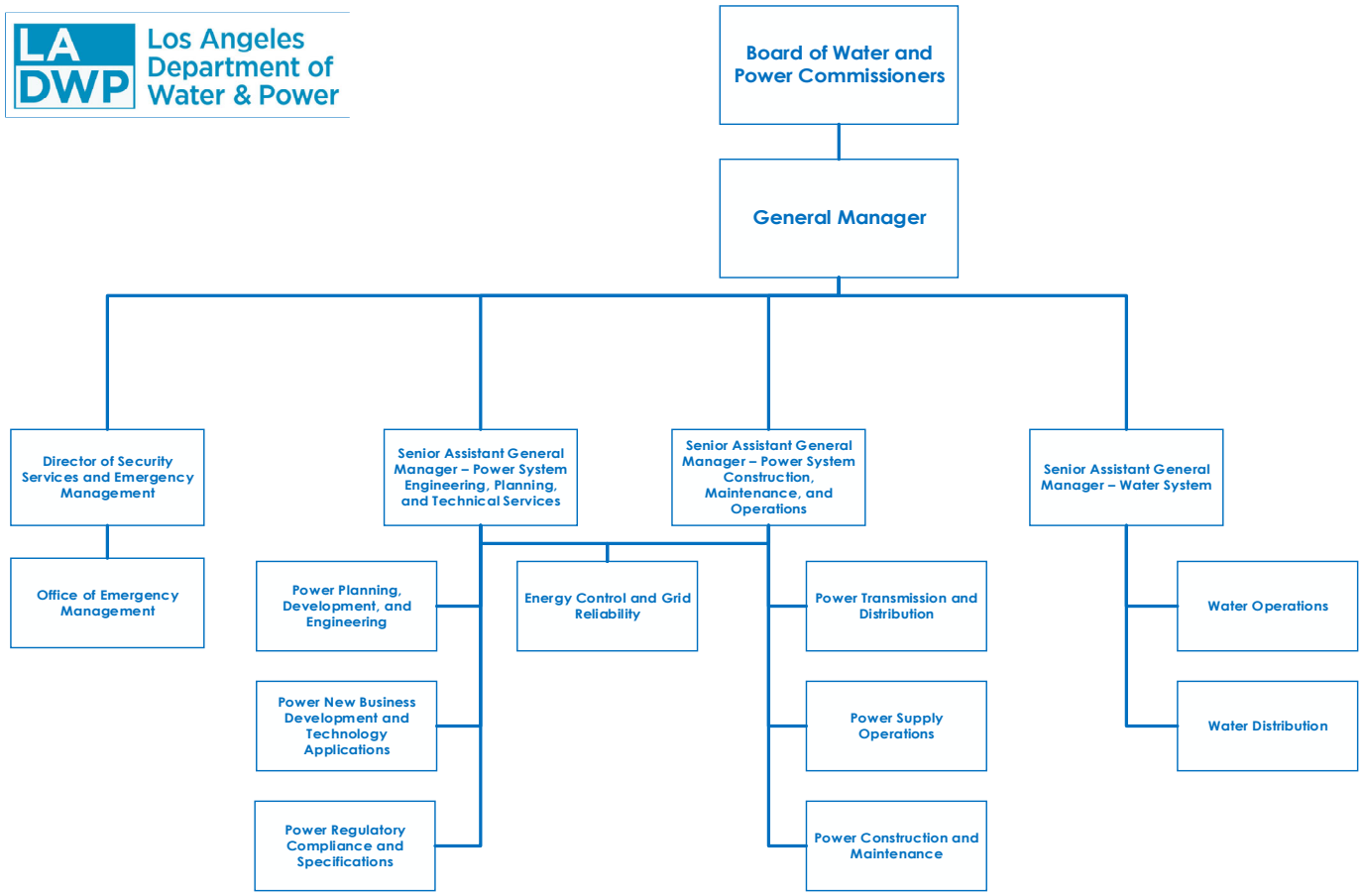


Figure 1: LADWP Wildfire Organizational Chart

2.2. BOARD OF WATER AND POWER COMMISSIONERS

Board of Water and Power Commissioners is granted the possession, management and control of the LADWP. The Board has the power and duty to make and enforce all necessary rules and regulations governing the construction, maintenance, operation, connection to and use of the LADWP and to acquire, construct, extend, maintain and operate all improvements, utilities, structures and facilities the Board deems necessary or convenient for purposes of the Department. The Mayor of the City appoints, and the City Council confirms the appointment of, members of the Board. The Board is traditionally selected from among prominent business, professional and civic leaders in the City. The members of the Board serve with only nominal compensation. Certain matters regarding the administration of the Department also require the approval of the City council.

2.3. GENERAL MANAGER

The management and operation of the Department are administered under the direction of the General Manager. The General Manager oversees various executive positions including the Senior Assistant General Managers of both Water and Power Systems.

2.4. POWER SYSTEM EXECUTIVE OFFICE

Power System Executive Office is responsible for managing all aspects of the Power System and is comprised of two roles: The Senior Assistant General Manager of Power System Engineering, Planning, and Technical Services and the Senior Assistant General Manager of Power System Construction, Maintenance, and Operations.

The Senior Assistant General Manager of Power System Construction, Maintenance, and Operations manages the Power System's day-to-day power supply operation, construction, and maintenance activities across the generation, transmission, and distribution systems including:

- Power Construction & Maintenance Division
- Power Supply Operations Division
- Power Transmission & Distribution Division
- Power System Safety & Training Division
- Power System Energy Control & Grid Reliability Division

The Senior Assistant General Manager of Power System Engineering, Planning, and Technical Services manages the Power System's critical engineering and planning functions including:

- Power New Business Development & Technology Applications Division
- Power External Energy Resources Division
- Power Planning, Development, & Engineering Division
- Clean Grid LA – Strategy Division

- Power Regulatory Compliance & Specifications Division
- Power System Energy Control & Grid Reliability Division

Together, these two positions oversee the entirety of the Power System and are responsible for ensuring the implementation of this Plan.

2.5. LADWP POWER TRANSMISSION AND DISTRIBUTION (PTD)

PTD is primarily responsible for the design, construction, inspection, and maintenance of LADWP's transmission and distribution lines. PTD groups adhere to the Operations and Protocols (See Section 4.7. "Operations and Protocols") identified here in this Plan and are directly and indirectly responsible for implementing electric facility design, inspection, maintenance, and vegetation management to minimize the risk of wildfires.

The role of PTD is to:

- Maintain system in a manner that will minimize potential wildfire risks.
- Take all reasonable and practicable actions to correct and/or minimize the risk of a wildfire caused by LADWP's transmission and distribution overhead facilities.
- Comply with relevant federal, state, and industry standard requirements, including the applicable industry standards established by the California Public Utilities Commission.
- Provide regular training programs for all PTD employees having obligations for implementation of this Plan.

PTD is currently divided into two sections:

1) Distribution Operations and
2) Distribution Construction and Maintenance

DISTRIBUTION OPERATIONS (DO)

DO inspects and maintains overhead transmission lines extending over 4,716 circuit miles throughout the Western United States and another 124 circuit miles of underground transmission in the Los Angeles area. The transmission facilities are used to transport electricity in bulk quantities from generation facilities to distribution facilities over long distances.

DO includes the Vegetation Management and Electric Trouble groups.

Vegetation Management prunes and removes trees to clear its power system from vegetation interference, conducts zone circuit patrols on a yearly basis, and conducts on the spot inspections for other LADWP groups and ratepayers on an as-needed basis. Electric Trouble supports Vegetation Management by conducting temporary emergency on-the-spot line clearance tree trimming and by switching or de-energizing distribution circuits in order

for Vegetation Management crews to work safely. Electric Trouble controls feeder circuits coming out of the distributing stations.

Within the City of Los Angeles, LADWP operates a 24-hour 7 day a week Electric Trouble Section that responds to power outages related issues in the distribution system. If LADWP receives a notification regarding a possible hazard, LADWP will send an Electric Trouble Patrol Crew to the hazard to determine the appropriate action.

DISTRIBUTION CONSTRUCTION AND MAINTENANCE (DCM)

DCM constructs and maintains overhead and underground distribution facilities and equipment that moves electricity from Receiving Stations and Distributing Stations to the customer usually over relatively short distances. There are over 7,252 miles of overhead distribution and another 3,736 miles of underground distribution facilities.

DCM includes the Overhead Distribution Design group, Distribution Inspection and Maintenance group, the Underground Service Alert group, the Contract Operations group and eight distribution operating districts (seven in the Los Angeles basin and one located in the Owens Valley).

2.6. LADWP ENERGY CONTROL AND GRID RELIABILITY (ECGR)

LADWP's Energy Control and Grid Reliability is overseen by both Power System Senior Assistant General Managers. A key group within ECGR is the Energy Control Center (ECC). The ECC has centralized control over LADWP's power system, including generating, receiving, and distributing stations and the transmission and subtransmission systems. Load Dispatchers at the ECC use Supervisory Control and Data Acquisition system to monitor and control the operation of the electrical system during normal and emergency conditions including the energizing and de-energizing of individual circuits and blocking or enabling of automatic reclosers.

2.7. LADWP POWER CONSTRUCTION AND MAINTENANCE (PCM)

LADWP's PCM adheres to the Operations and Protocols (See Section 4.7. "Operations and Protocols") identified here in this Plan. PCM also adheres to its internal fire prevention procedures for its General Construction crews which provide employees with information and guidelines that will assist them in recognizing, reporting, and controlling fire hazards when working near or around electrical equipment. PCM conducts vegetation management for LADWP's substations by monitoring and controlling the vegetation growth through the following:

- Monthly Station Inspections by Electrical Station Maintenance
- Routine Landscape Maintenance

2.8. LADWP POWER SUPPLY OPERATIONS (PSO)

PSO conducts routine and as-needed inspections and maintenance on LADWP's generation and substation facilities. PSO's inspection and maintenance activities ensure the risk of outages and wildfires are reduced within the generation and substation facilities. PSO also has an extensive brush clearance program in which its crews remove brush from around its facilities. PSO crews conduct their inspections in accordance with LADWP's Transmission Maintenance and Inspection Plan and adhere to the Operations and Protocols (See Section 4.7. "Operations and Protocols") identified in this Plan when conducting any work around LADWP's facilities.

2.9. LADWP POWER PLANNING, DEVELOPMENT AND ENGINEERING (PPDE)

PPDE adheres to LADWP's construction standards when designing the infrastructure necessary to generate, transmit, and distribute power to its customers and communities in a safe and environmentally responsible manner. PPDE's design criteria and methods are consistent with industry standards that include, but are not limited to, California Public Utilities Commission's (CPUC) General Orders (GO), American National Standards Institute (ANSI), and the Institute of Electrical and Electronics Engineers. All designs are required to meet these criteria to ensure the reliability and safety of LADWP's grid and service territory.

2.10. LADWP POWER NEW BUSINESS DEVELOPMENT AND TECHNOLOGY APPLICATIONS (PNBDTA)

A key group within LADWP's PNBDTA is the Power System Information and Advanced Technologies (PSIAT) group which is responsible for compiling data and information related to this Plan's metrics. PSIAT works closely with PTD's Electric Trouble to track LADWP's outages and their causes through its Outage Management System. PSIAT also has the ability to identify if these outages are located within Tier 2 and Tier 3 High Fire Threat Districts (HFTD) within LADWP's service territory. For more information on this Plan's metrics, see Section 7.1. "Metrics and Assumptions for Measuring Plan Performance".

2.11. LADWP POWER REGULATORY COMPLIANCE AND SPECIFICATIONS (PRCS)

The core mission of PRCS is to foster a strong culture of compliance throughout LADWP's Power System and ensure that LADWP remains compliant with all reliability-related and legislative-mandated standards and regulations. Weekly meetings are hosted by RSCG to inform LADWP management of all federal, state, and city regulatory updates.

With respect to this Plan, PRCS' role includes, but is not limited to, the following:

- Monitor regulations related to local publicly owned electric utilities' Wildfire Mitigation Plans

- Ensure compliance with sections of California Law and regulations as they relate to local publicly owned utilities' Wildfire Mitigation Plan
- Coordinate with LADWP stakeholders to incorporate relevant information into the Plan

Although PRCS is not a part of the Plan's implementation, PRCS will continue to provide awareness of relevant activities that may impact the Plan and will coordinate annual updates to the Plan.

2.12. LADWP WATER SYSTEM

In High Fire Threat Districts (See Section 4.1. "High Fire Threat District") where water pumping support is required, LADWP's Water Operations has generators and internal combustion engines that auto-start during power outages to ensure pressure to hydrants. Water Operations is aware of the location of generators that auto-start and are able to obtain or access near real-time statuses of these generators. The Water System's Transmissions Operations section is responsible for these pump station generators and internal combustion engines. The Water System also has water storage tanks and reservoirs that are available for use during wildfire events. Should the need arise, LADWP's crews are available to provide support in water distribution system operations related to firefighting efforts. There are formal agreements with LAFD and Los Angeles County Fire Department (LACoFD) on the use of LADWP's tanks, reservoirs, and helipads within the Los Angeles Metro and Aqueduct areas as well as over 60,000 fire hydrants citywide that are available to support fire-fighting efforts.

2.13. LADWP OFFICE OF EMERGENCY MANAGEMENT (OEM)

LADWP's OEM coordinates with all other City of Los Angeles Departments that play key roles in responding to emergencies. In addition, LADWP has a long-standing working relationship and communication protocol with the LAFD, LACoFD, and Cal Fire before, during, and after wildfire events. A key indicator of our coordination and preparedness is LAFD's response time. For example, the maximum response time by LAFD personnel within the City limits is five to seven minutes. During emergencies, LADWP's OEM coordinates with Los Angeles City Departments who have pre-defined key response roles. As LADWP's communication channel to the City, LADWP OEM acts as a liaison with the LAFD. Information from LACoFD or the Cal Fire is disseminated through this communication chain.

LADWP's OEM represents LADWP within the Emergency Operations Organization (EOO). The EOO is the operational department of the City that centralizes the direction and control of the planning, coordination and management of disaster preparedness, mitigation, response and recovery for the City. Unique in design, it is a "department without walls" which comprises all agencies of the City's government. It centralizes command and information coordination to enable its unified chain-of-command to operate efficiently and effectively in managing the City's resources.

OEM is also responsible for coordinating the deployment of LADWP's Emergency Command Post Vehicle (ECPV), a mobile coordination and control facility used to respond to Power System and/or Water System incidents. The ECPV provides mobile, on scene resources with which LADWP can carry out restoration operations in an efficient and uninterrupted manner with proximity to the incident to aid in timely response.

During a large emergency, the City Emergency Operations Center (EOC) is the focal point for coordination of the City's emergency planning, training, response and recovery efforts. EOC processes follow the National All-Hazards approach to major disasters such as fires, floods, earthquakes, acts of terrorism, and large-scale events in the City that require involvement by multiple City departments. LADWP staff is assigned to the City EOC Operations Section Utilities Branch as Branch Directors, Power System Unit Leaders and Water System Unit Leaders as seen in the City's EOC Organizational Chart[1]. The EOC allows LADWP to provide utility updates and assistance to the rest of the City, as well as request assistance of City resources if necessary. It is important to note that the EOC, while not a direct part of LADWP's Power System Emergency Centers, adds to its capabilities. These centers act as primary roles that are activated in the event of an emergency. More information on these emergency centers can be seen in Figure 2.

1. https://emergency.lacity.org/sites/g/files/wph496/f/1%20-%20EOC_Org_Chart%20With%20Header_CORRECTED.pdf

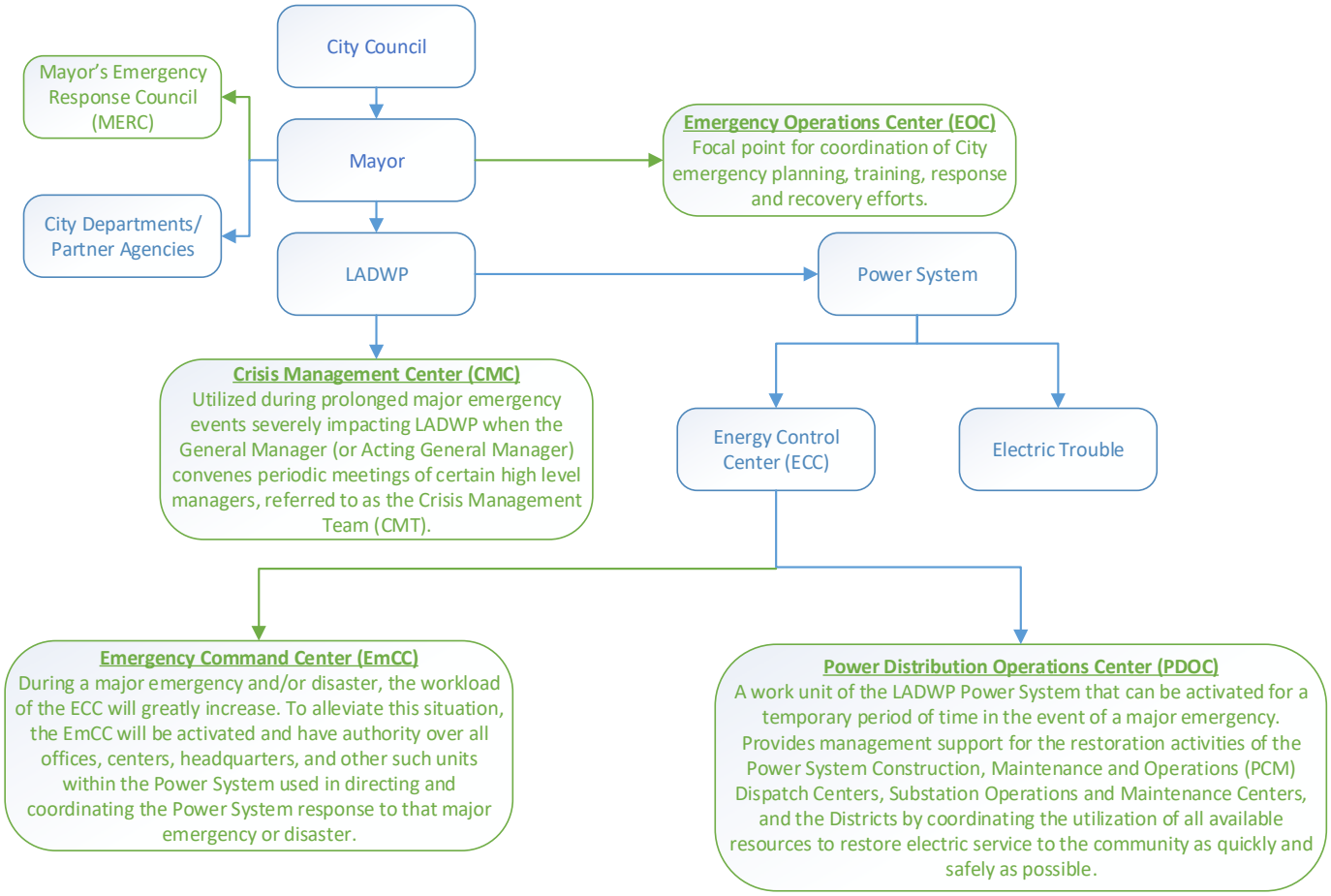


Figure 2: LADWP Power System Emergency Centers

For the City of Los Angeles, in responding to emergencies, LADWP ensures that it uses the Standardized Emergency Management System (SEMS). SEMS is the fundamental structure mandated by law for the response phase of emergency management throughout California. This system unifies all elements of the California emergency management community into a single integrated system with standardized key elements.

SEMS incorporates the Incident Command System (ICS), a field-level emergency response system based on management by objectives, as well as inter-agency coordination and mutual aid. SEMS facilitates both the flow of information within and between levels of the system and coordination among all responding agencies.

All LADWP and City of Los Angeles emergency operations follow protocols and procedures of ICS, the California SEMS, and the National Incident Management System (NIMS).

If the LADWP Power System requires additional resources because of a major emergency, it can use LADWP OEM to contact external utility agencies and associations for mutual assistance. LADWP is a signatory to agreements with the following associations:

- Southern California Public Power Association (SCPPA)
- California Utilities Emergency Association (CUEA)
- American Public Power Association (APPA)
- Western Region Mutual Assistance Group (WRMAG)

Additionally, a review of mutual aid agreements is completed on an annual basis to ensure that the Department is capable of addressing all hazards and threats. Customer Service Division, and Communications, Media, and Community Affairs also maintain an integral role in relaying information regarding LADWP's response to hazard related outages to the public.

As previously mentioned, LADWP is a member of the CUEA, which plays a key role in ensuring coordination with operators of telecommunication infrastructure and communications between utilities during emergencies. LADWP also participates in the WRMAG's Western Region Mutual Assistance Agreement, which is a mutual assistance agreement covering utilities across a number of western states.

As a member of SCPPA, LADWP is actively involved in the network of local public power utilities to meet future customer expectations and enhance operational efficiencies. Through this network, members have developed a mutual aid playbook to improve the process of obtaining mutual aid in the Southern California region. The SCPPA Playbook provides the following for a streamlined mutual aid process:

- A framework for communication between SCPPA members, CUEA, and the APPA
- A structure for collaboration during emergencies and the need for mutual assistance
- A facilitation of communication among SCPPA members and other agencies

LADWP's OEM participates in conference calls coordinated by SCPPA, CUEA, WRMAG, and APPA regarding actual and potential requests for mutual assistance by external utilities. LADWP's

OEM also participates in conference calls with the City's Emergency Management Department (EMD) regarding actual and potential threats such as extreme heat events, high winds, and rainstorms. If there is an impact to the City and required action by LADWP, LADWP may do the following:

- Send responders to the City EOC if it is activated.
- Activate the Power Distribution Operations Center (PDOC) which, when activated in the event of a major emergency, provides management support for the restoration activities of the PCM Dispatch Centers, Substation Operations and Maintenance Centers, and the Districts by coordinating the utilization of all available resources to restore electric service to the community as quickly as possible. The PDOC will not replace the normal paths of reporting damage nor dispatching work, but can augment those resources. The PDOC will also absorb political and influential customer pressure, maintain and overall assessment of the extent and status of the emergency, and obtain resources if required.
- Activate the Emergency Command Center (EmCC) which, when activated, shall have authority over all offices, centers, headquarters, and other such units within the Power System used in directing and coordinating the Power System response to the major emergency or disaster condition.
- Update SCPPA, CUEA, and the EMD Duty Officer regularly on numbers of electrical outages and LADWP's actions in response to those outages. Depending on the severity of the incident, operators of the telecommunications infrastructure will be notified through CUEA.

LADWP participates in annual tabletop exercises as a part of the City's SEMS structure. This training incorporates active participation from all departments throughout the City which can be seen in Section 4.6. "Workforce Training" of this Plan. LADWP also participates in drills and exercises held by the City's EOC, SCPPA, APPA, WRMAG, and CUEA.

3. WILDFIRE RISKS AND RISK DRIVERS

3.1. WILDFIRE RISKS AND RISK DRIVERS ASSOCIATED WITH TOPOGRAPHIC AND CLIMATOLOGICAL RISK FACTORS

The City of Los Angeles and California in general contains the potential for fire hazards. The terrain, climate, and vegetation that make up Southern California create a wildland fire hazard in areas near or around LADWP facilities and other structures, such as towers. Hot summers without rain and low humidity create long periods of high fire danger. LADWP regularly surveys its service territory during its vegetation management and inspection and maintenance activities to determine topographical and climatological risks. The main factors considered are as follows:

- The terrain and the accessibility for first responders to react to an incident
- Vegetation type and density

- Extended drought conditions
- Current weather conditions
- Changing weather patterns (climate change)

In 2008, LADWP developed wildfire prevention measures, first memorialized in a construction standards bulletin and have since evolved over the years to more effectively reduce the risk of wildfires resulting from its own electrical lines and equipment.

3.2. CPUC DESIGNATED FIRE THREAT DISTRICTS

LADWP worked with Cal Fire and the CPUC for two years to develop the CPUC Tier 2 and Tier 3 High Fire Threat District map. This map, in conjunction with the City of Los Angeles Very High Fire Hazard Severity Zone (LAFD Fire Zone), was used to create LADWP's Fire Threat Map (See Appendix A "LADWP Fire Threat Map"). The addition of the LAFD Fire Zones provides LADWP with an intermediary zone around the Tier 2 Elevated Fire Threat Districts. LADWP treats the LAFD Fire Zones the same as Tier 2 areas and applies the same Wildfire Prevention Strategies to further mitigate wildfire risks. LADWP's transmission assets have also been outlined on the Fire Threat Map within Appendix A.

3.3. WILDFIRE RISKS AND RISK DRIVERS ASSOCIATED WITH DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE

Overhead electric power lines are particularly vulnerable to high winds. Falling palm fronds, branches, and other tree limbs can disrupt power distribution lines due to high winds. According to the National Weather Service wind loading thresholds, wind gusts that exceed 58 miles per hour (mph) are common and can cause small power outages. High winds in steep terrain, mountain passes, or open desert areas have also been responsible for transmission line failures.

LADWP regularly surveys its service territory during its vegetation management and inspection and maintenance activities to determine its wildfire risks and associated risk drivers. Below are LADWP's identified risk drivers and associated mitigation measures/programs:

Risk Drivers	Mitigation Measures and Programs
High Wind Event	▪ Construction Standards ▪ Operational Protocols ▪ Blocking Reclosers
Vegetation Contact	▪ Transmission and Distribution Vegetation Management Programs
Conductor Failure	▪ Power System Reliability Program ▪ Transmission and Distribution Maintenance and Inspection Plans ▪ Construction Standards

Conductor Slap	▪ Power System Reliability Program ▪ Transmission and Distribution Maintenance and Inspection Plans ▪ Construction Standards
Pole/Hardware Failure	▪ Power System Reliability Program ▪ Transmission and Distribution Maintenance and Inspection Plans ▪ Construction Standards
Aging Infrastructure	▪ Power System Reliability Program ▪ Construction Standards

Several of these mitigation measures and programs are discussed in their respective sections.

Additional risk drivers such as human activity, wildlife contact, and mylar/metallic balloon contacts will be tracked and monitored to determine whether new mitigating activities are warranted. The mitigation measures implemented as part of this Plan are designed to minimize widespread service interruptions, property damages, community impact, equipment damages, and injuries or fatalities due to wildfires.

LADWP's implemented solutions coupled with its rigorous construction standards (See Section 4.2. "Design, Construction Standards, and Infrastructure" for more details) in high fire threat areas, its robust vegetation management program (See Section 4.3. "Vegetation Management" for more details), and collaboration with fire agencies affirm that the utility's overhead electrical lines and equipment do not pose a significant wildfire risk.

3.4. LADWP RISK ASSESSMENT

LADWP considered wildfire risks and their respective drivers during the development of this Plan to ensure that the Plan's objectives can be met. Such wildfire risks and risk drivers can be seen in the subsections of Section 3. LADWP understands and effectively manages the level of exposure to these risks which could impact the Plan's objectives of minimizing sources of ignition, improving the resiliency of the electric grid, and maximizing efficiency and improving programs and protocols. Various policies, programs, standards, and procedures have been implemented to ensure the mitigation of wildfire risks and their associated drivers. LADWP has historically implemented efforts to minimize risks and prevent wildfires and the Plan will leverage on such historical efforts as well as ongoing, new, and future improvements or considerations.

LADWP serves a population of over 4 million residents with 1.5 million customers in Los Angeles and 5,000 customers in the Owens Valley. 152,569 of those customers are within the Tier 2 Elevated Fire Threat District and 5,583 customers are within the Tier 3 Extreme Fire Threat District. The City of Los Angeles covers 478 square miles consisting mostly of urban environment. The high fire threat areas in the City are the eastern end of the Santa Monica Mountains, a portion of the Verdugo Mountains, and small areas located on the outer edges of the City. The Owens Valley service territory is located in east-central California, between the

Sierra Nevada Mountains on the west and the White Mountains on the east, and totals 1,839 square miles. The high fire threat areas in the Owens Valley include sections between the Sierra Nevada Mountains and U.S. Route 395.

To deliver energy from generating plants to its customers, LADWP owns and/or operates a vast network of transmission lines. As the Operating Agent of the Pacific DC Intertie, the Southern Transmission System, the Mead-Adelanto Transmission Project and certain Navajo-McCullough transmission facilities, LADWP transmits energy for the co-owners of, or participants in, these facilities. LADWP's transmission lines traverse through the state of California on steel lattice transmission towers. LADWP maintains 4,716 miles of overhead transmission lines, their respective transmission towers, and 124 miles of underground transmission cable located within and outside of its service territory.

LADWP maintains 308,366 poles, 7,252 miles of overhead and 3,736 miles of underground distribution lines located within and outside of its service territory. Tables 1 and 2 show the numbers and percentages of LADWP's distribution and transmission assets located in the various fire threat zones within the City of Los Angeles and Owens Valley service territories.

Assets Within the City of Los Angeles Service Territory					
	Asset	**CPUC Tier 3 (Extreme)**	**CPUC Tier 2 (Elevated)**	**LAFD High Fire Risk Zone (Without Tier 2 and Tier 3)**	**LADWP Total**
Distribution	**Poles**	1,477	38,270	6,634	308,366
		0.5%	12.4%	2.2%	
	Circuit Miles	39	923	179	7,252
		0.5%	12.7%	2.5%	
Transmission	**Towers**	8	119	58	15,452
		< 0.1%	0.8%	0.4%	
	Circuit Miles	2	40	10	4,716
		< 0.1%	0.8%	0.2%	

Table 1: Assets Within the City of Los Angeles Service Territory

Assets Within the Owens Valley Service Territory				
	Asset	**CPUC Tier 3 (Extreme)**	**CPUC Tier 2 (Elevated)**	**LADWP Total**
Distribution	**Poles**	NONE	2,348	308,366
			0.8%	
	Circuit Miles		102	7,252
			1.4%	
Transmission	**Towers**	NONE	251	15,452
			1.6%	
	Circuit Miles		52	4,716
			1.1%	

Table 2: Assets Within the Owens Valley Service Territory

Of LADWP's total service territory in the City of Los Angeles and the Owens Valley, approximately 14.1% is within the Tier 2 Elevated Fire Threat District and 0.5% is within the Tier 3 Extreme Fire Threat District (See Appendix A "LADWP Fire Threat Map"). Of LADWP's total transmission circuit miles, approximately 5.4% are located in Tier 2 Elevated Fire Threat District and 7.4% are located within the Tier 3 Extreme Fire Threat District (See Appendix A "LADWP Fire Threat Map"). These values can be seen in the Table 3 below.

Percentage of Circuit Miles in Wildfire Threat Zones		
	Tier 2	**Tier 3**
% of Overhead Distribution Circuit Miles	14.1%	0.5%
% of Overhead Transmission Circuit Miles	5.4%	7.4%

Table 3: Percentage of Circuit Miles in Wildfire Threat Zones

4. WILDFIRE PREVENTATIVE STRATEGIES

4.1. HIGH FIRE THREAT DISTRICT

LADWP has developed fire maps and elevated construction standards to ensure it mitigates wildfires that could be initiated by its electrical equipment and facilities. As early as February 2008, LADWP's PTD had developed High Wind and Fire Area maps along with new Construction Standards (C030) for these areas. After the CPUC approved a new Tier 2 and Tier 3 HFTDs map, LADWP updated its High Wind and Fire Area map to include the CPUC approved Tier 2 and Tier 3 HFTDs. Following the update, a bulletin was issued to all stakeholders outlining LADWP's updated map (See Appendix A "LADWP Fire Threat Map" for more details). These HFTDs are a key consideration when conducting its construction, inspection, maintenance, repair, and clearance practices.

4.2. DESIGN, CONSTRUCTION STANDARDS, AND INFRASTRUCTURE

LADWP's electrical equipment and facilities are designed and constructed to meet or exceed applicable federal, state, or industry standards. LADWP treats CPUC GO 95 as a key industry standard for design and construction standards for overhead electrical facilities. LADWP meets or exceeds all requirements in GO 95. Additionally, LADWP monitors and follows as appropriate the National Electric Safety Code. LADWP is constantly looking to improve and harden its infrastructure by continuously evaluating and updating its policies, processes, methodologies, and Construction Standards as new technologies emerge. For example, the use of cellular technology allows for information to be sent directly to LADWP's Electric Trouble who would dispatch crews to inspect and repair circuits quickly.

Starting in 2008, in an effort to protect its overhead facilities, LADWP increased its power line construction standards to reduce risks associated with overheard equipment in the high wind and designated fire hazard areas. Some updates to mitigate the risk of wildfire include:

- Installing alternative material poles such as ductile iron, steel, and concrete while maintaining compliance with General Order 95 Safety Factors
- Using larger conductors and fiberglass arms
- Increasing conductor spacing
- Replacing low voltage bare conductors with insulated conductor
- Increasing pole load calculations from 8-pounds of wind pressure (56 mph) to 16-pounds of wind pressure (80 mph), enabling its poles to sustain a higher wind pressure

These standards were updated again in 2018 and exceed established ratings set by the CPUC for power lines.

Beyond the updates to LADWP's construction standards, LADWP continues to evaluate new solutions to mitigate the risk of wildfire. LADWP is determining the feasibility of installing covered conductor or undergrounding overhead lines in select areas.

LADWP has a planned maintenance and replacement program (See Section 4.5. "Power System Reliability Program (PSRP)" for more details) for its infrastructure. Back-up power is available for critical LADWP facilities in the event of power failure. Security has also been increased at key facilities to minimize physical security threats. Additionally, personnel will respond according to the LADWP's emergency response plans to address interruptions and to restore service within the City.

LADWP takes preventive measures by installing fire extinguishers where required for each facility. Vegetation management is conducted under and around critical transmission and distribution lines and equipment. Each facility manager is also responsible for conducting drills for their on-site personnel.

4.3. VEGETATION MANAGEMENT

LADWP meets or exceeds the minimum industry standard vegetation management practices. LADWP complies with North American Reliability Corporation (NERC) standards and requirements including NERC FAC-003-4, where applicable. For both transmission and distribution facilities, LADWP meets: (1) GO 95 Rule 35; and (2) the GO 95 Appendix E Guidelines to Rule 35; (3) Public Resources Code (PRC) section 4292; and (4) PRC section 4293. These standards require significantly increased clearances in the HFTDs

LADWP maintains a database over 400,000 trees and prunes approximately 185,000 per year. LADWP ensures all vegetation for distribution and transmission lines are in compliance with required clearances. Private property trees and vegetation are the responsibility of the private property owner. LADWP's Transmission Vegetation Management Program (TVMP) and Line Clearance Tree Trimming Program meet or exceed all applicable Federal and State mandates. In addition, LADWP follows ANSI A300 which is an industry pruning standard and best management practice. The objective of LADWP's Vegetation Management group is to ensure the safe and reliable operation of LADWP's transmission and distribution system by eliminating vegetation-caused outages.

When vegetation inspections are performed, the inspection findings are recorded on an inspection form, reported to supervision, and work orders are generated, when appropriate. When vegetation is identified as posing a potential hazard, the necessary arrangements are made to mitigate the hazard and the vegetation is trimmed or removed.

LADWP performs vegetation inspection of 100% of its transmission and distribution lines at least once per calendar year to ensure no vegetation encroachments occur within the conductor's respective clearance distance. In addition to the annual inspections, mid-cycle inspection patrols are also conducted around 6 months following the last annual maintenance, usually in HFTDs. These inspection patrols are performed on foot, by car, or by air.

LADWP maintains a pruning cycle of approximately 12 months. Crews visit each neighborhood within the City of Los Angeles and its service areas during the cycle. Trees projected to be within 18 inches of the high-voltage lines or 48 inches in High Fire Threat Districts during the 12 months are pruned. The amount of trimming will depend on the conductor voltage, construction, tree location, species, and rate of growth.

LADWP's practices regarding pruning are as follows:

- All pruning shall be in accordance with the minimum clearances as identified in LADWP's TVMP and Line Clearance Tree Trimming Program
- Line sag, wind sway, tree movement from wind, species, type, and anticipated growth rates shall be considered when identifying trees to be pruned or removed and prescribing clearance distances
- The time required to obtain any necessary permission or permits to perform required pruning or removals shall be taken into consideration when scheduling any vegetation management work and prescribing clearances
- All pruning and removal work shall be in accordance with ANSI A300 Part 1 (2008) and Part 7 (2012)

LADWP's practices regarding vegetation removal include:

- Trees and vegetation on LADWP-owned parcels shall be removed when deemed necessary by LADWP
- Vegetation which requires frequent pruning shall be removed whenever possible
- Trees that are growing within LADWP's Transmission right of way that are dead, show signs of disease, decay, or ground or root disturbance shall be removed

LADWP performs annual compliance inspections of every tree that has the potential to contact overhead facilities. LADWP performs more frequent and detailed inspections of any such trees, and in cases where "hazard trees" (dead, dying, diseased or leaning) could strike the facilities, crews will work with the land owner to remove the tree or portion of the tree that poses a risk. LADWP also continues to use emerging and advance technologies to better assess and track vegetation-associated fire risk.

4.4. INSPECTION AND MAINTENANCE

LADWP meets or exceeds the minimum inspection requirements provided in CPUC GO 165 and CPUC GO 95, Rule 18. At a minimum, LADWP patrols its power distribution system once a year. In designated wildfire risk areas, patrols usually take place between March and April, which helps to identify and address concerns for the upcoming fire season. LADWP performs detailed inspection every five years, and intrusively inspects wood poles after 20 years of service. If a pole passes intrusive inspection, it will be scheduled for another intrusive inspection every 10 years thereafter. LADWP staff uses knowledge of the specific environmental and geographical

conditions to determine when areas inside of the HFTD require more frequent inspections. The inspection activities are summarized below:

- **Patrol Inspections**: refers to visual, non-invasive inspections where staff identifies obvious safety and maintenance issues.
- **Detailed Inspections**: refers to full evaluations of distribution facility equipment, where staff assesses the conditions of poles, conductor lines, transformers, fuses, insulators, and other assets. Crews can also make on-the-spot repairs for certain issues identified during the inspection process.
- **Pole Inspections**: refers to evaluation of the condition and integrity of the distribution system's utility poles. For wood poles, inspection staff probes the utility pole to test for signs of decay or other factors which indicate the pole requires maintenance, reinforcement, or replacement.
- **Infrared Inspections**: refers to use of heat sensing infrared cameras to detect "hot spots" which cannot be seen by the human eye. Hot spots can indicate potential failure points exist, such as bad connections or failing components.

Repair and maintenance work identified during inspections is prioritized based on the level of risk they pose and the location of the asset. Work associated with immediate safety and/or reliability risks as wells as tasks or assignments within the Tier 3 and Tier 2 HFTDs are given the highest priority.

Once the repairs are made, a supervisor will inspect the repairs to ensure they are completed per LADWP's construction standards. Furthermore, if LADWP staff discovers a facility in need of repair and not owned by LADWP but is installed on LADWP's pole, LADWP will issue a notice to the facility owner.

LADWP will review inspections results annually and adjust, if necessary, to lower the risk of wildfire due to its electrical lines. LADWP has placed a higher priority for inspections and maintenance on its transmission and distribution assets within Tier 2 and Tier 3 HFTDs.

LADWP also inspects and maintains its transmission lines and towers per its internal procedures such as its Transmission Inspection Maintenance Plan (TMIP). The purpose of LADWP's TMIP is threefold:

- To ensure the safe and reliable operation of the Department's bulk transmission system
- To describe in a single document the maintenance and inspection criteria and activities for certain LADWP lines as identified by the Western Electricity Coordinating Council (WECC), "taking into consideration diverse environmental and climatic conditions, terrain, equipment, maintenance philosophies, and design practices"
- To ensure compliance with WECC Standard FAC-501-WECC-2 – Transmission Maintenance, as approved by the Federal Energy Regulatory Commission on May 30, 2018

LADWP performs aerial patrols of its transmission lines biannually (at least once during the first half of the year and at least once during the second half of the year, with at least 3 months

between intervals). These aerial patrols are conducted in order to identify and quantify right of way encroachments, construction, conductor damage, insulator breakage, earth movement, or any other condition which may impact transmission system right of way property or facilities. These patrols include a visual inspection of towers, fixtures, conductors and related hardware, insulators, and overhead ground wires. Attention is also given to right of way conditions, encroachments, and vegetation issues.

LADWP conducts inspections on its transmission towers in an orderly and systematic manner starting with the tower site and progressing up the tower to the static peak circling the tower at each level bar, where feasible, to assure 360-degree coverage. Tower bolts are spot checked for torque to the following specification: 7/8 bolts 90 psi, 3/4 bolts 70 psi, and 5/8 bolts 50 psi. Special attention is given to bolts at splice points, arm supports, and conductor attachment points. Once completed, all reportable conditions are entered in a transmission maintenance database.

LADWP also conducts maintenance on its transmission towers via contamination control (insulator washing) and tower and wood pole structure management. Contamination control is achieved by the use of truck mounted nozzle washers and climbing hand wash methods. All insulator washing is performed with the application of high-pressure de-mineralized water. Intrusive inspections of wood poles are performed in accordance with GO 95. For transmission towers that cross other lines, freeways, major highways, railroads, or bodies of water, a detailed climbing inspection is conducted annually. All other towers are inspected at least once every ten years. Other forms of inspections include patrols by air or ground due to reports of trouble, line relays, or following an extended planned outage.

In addition, LADWP continues to explore enhanced maintenance activities within the HFTD. Such enhancements may include increased frequency of detailed inspections and infrared inspections. LADWP also plans to assess the feasibility of using drone technology to aid in inspections and to provide additional visibility without the need to climb poles.

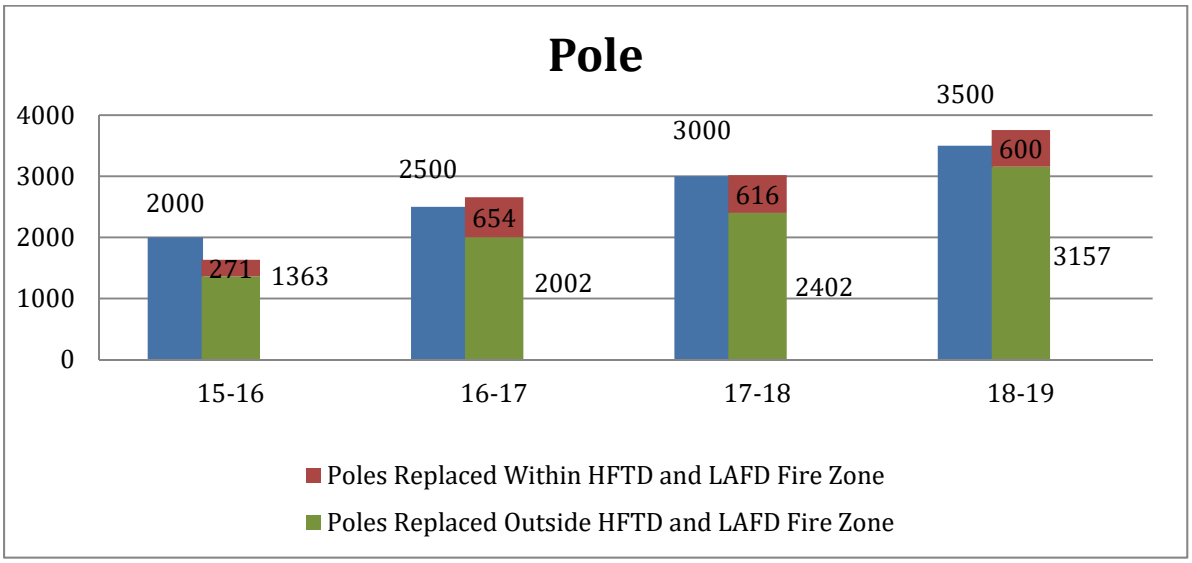
4.5. POWER SYSTEM RELIABILITY PROGRAM (PSRP)

LADWP is investing heavily in its Power System Reliability Program (PSRP) in order to maintain a robust, reliable, and safe Power System through the replacement of aging infrastructure assets related to its transmission and distribution system. In July 2014, the Power Reliability Program (PRP) which started in 2007 with a focus on improving the distribution system, evolved into the PSRP to help prioritize asset maintenance and capital work for each major section of the Power System, including generation, transmission, substation, and distribution.

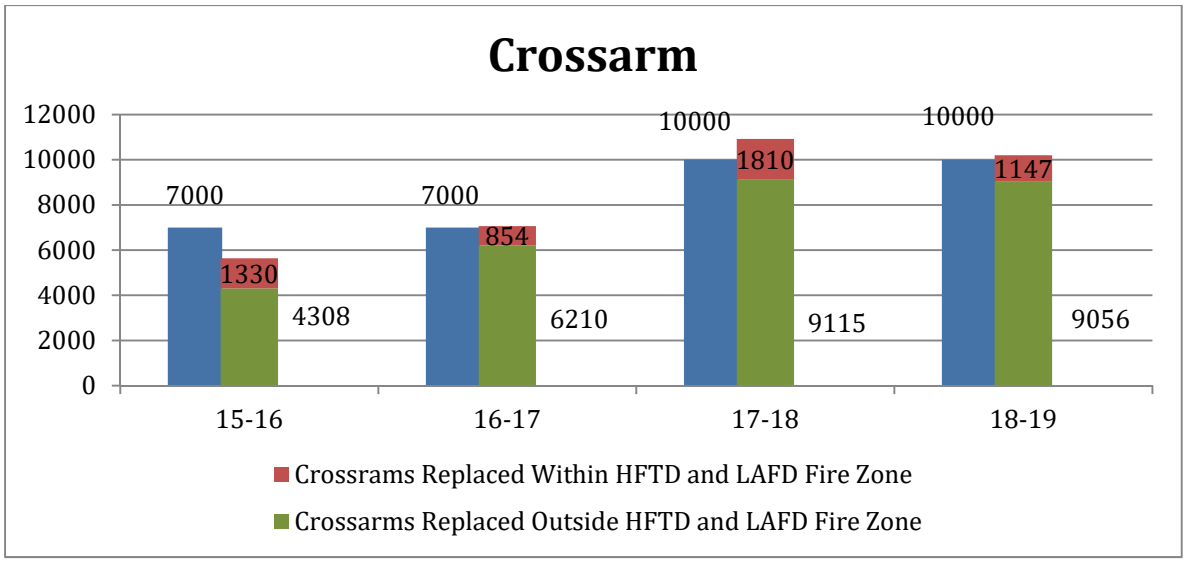
The PSRP is a comprehensive, long-term power reliability program with the following goals: (a) mitigate problem circuits and stations based on the types of outages and equipment failures specific to the facility, (b) expedite restoring temporary repairs of equipment failures and target circuits that contribute heavily to LADWP's reliability indices, (c) commit to proactive maintenance and effective capital improvements, and (d) achieve replacement cycles that align with the assets' respective life cycles, including replacement of overloaded distribution

transformers, worn underground cables, deteriorated overhead poles, and fatigued substation equipment.

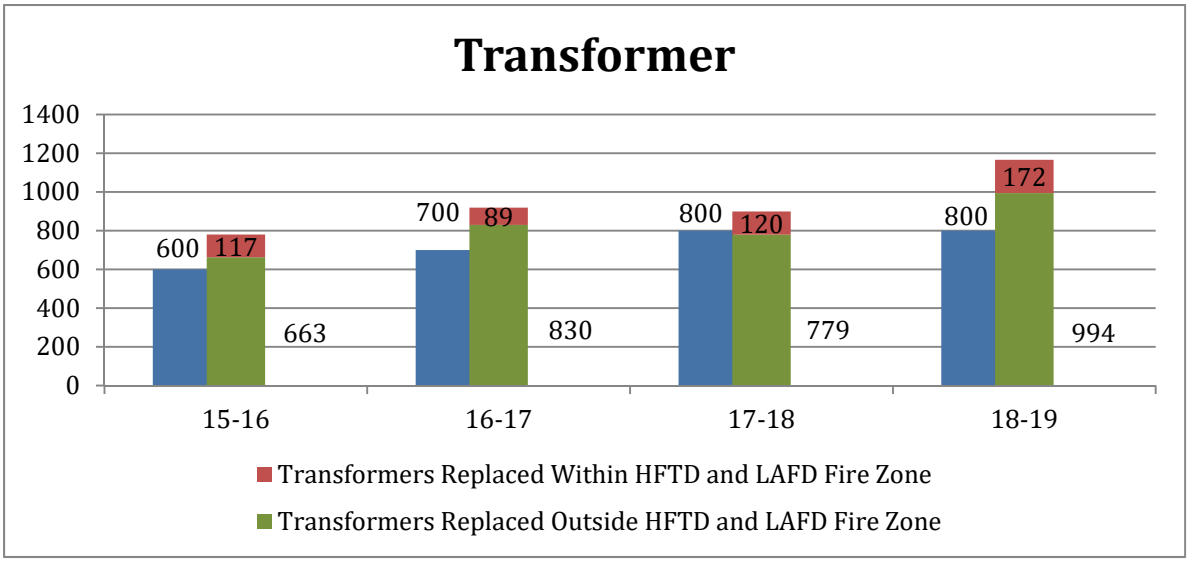
The PSRP identifies the replacement goals for specific assets to be focused on by fiscal year. These PSRP targets are expected to be updated on a fiscal year basis to adjust to varying Power System conditions and resource allocations. As a part these goals, LADWP has placed an emphasis on the assets located in the various HFTDs due to inspection priorities of CPUC's GO 95 Rule 18. A minimal amount of LADWP's distribution assets are located within HFTDs. LADWP continues to inspect and replace assets in these High Fire Threat Districts to harden its infrastructure and mitigate wildfire risks. The graphs below list the overhead targets and accomplishment which includes the fire threat zones. The replacements of assets in the HFTDs are constructed using the Standards that are developed for High Wind and Fire areas.



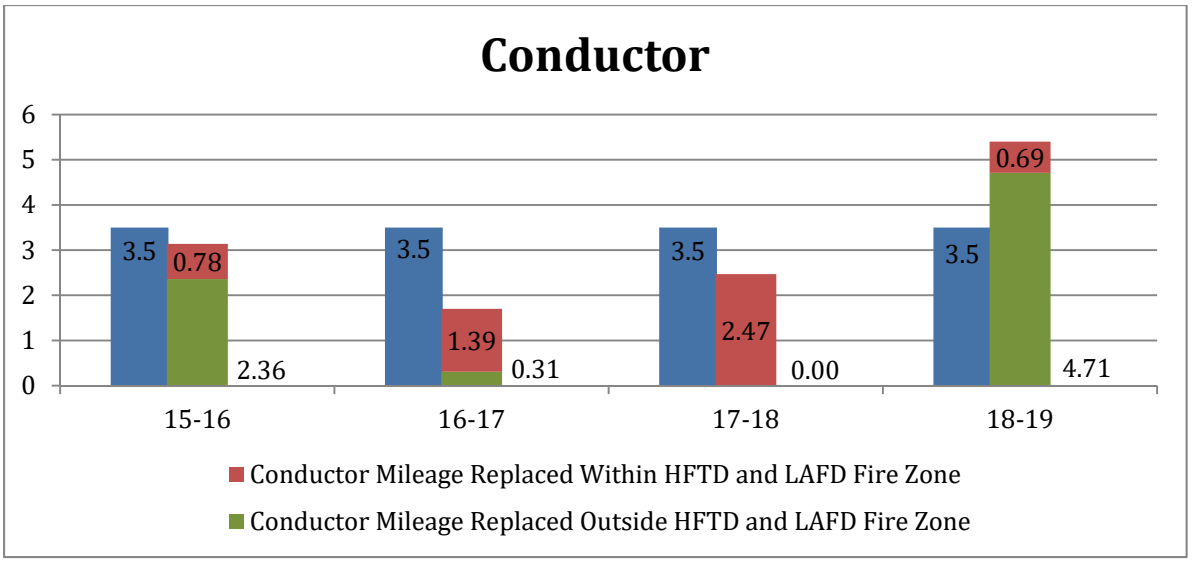
Graph 1: PSRP Pole



Graph 2: PSRP Crossarm



Graph 3: PSRP Transformer



Graph 4: PSRP Conductor Mileage Replaced

LADWP has planned the PSRP budget to support the following key objectives: (a) gradually ramp up investments to hasten efforts to address the backlog of asset inspection/maintenance and capital improvement work; (b) systematically invest in current and future projects that have the greatest impact to improve LADWP's reliability indices; (c) increase investments to achieve replacement cycles that align with the assets' respective life cycles; and (d) invest in the training and resources needed to ensure LADWP's capability to maintain the higher level of reliability. Starting with the actuals since FY 15-16 (i.e. $664.9 million), the PSRP expenditures are expected to ramp up to the approved FY 20-21 budget of $953.9 million, which represents an increase of just over 30% within a five-year period. This is not only to align with the rate case from 2016 to 2021, but it is to allow LADWP to achieve the preferred replacement cycle for all its major assets within generation, transmission, substation, and distribution.

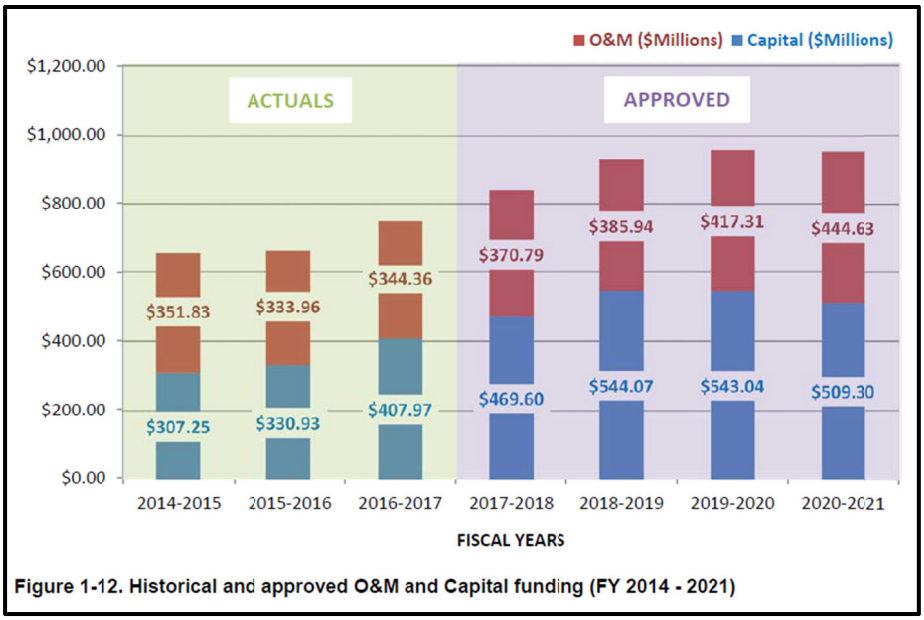


Figure 3: Historical and Approved O&M and Capital Funding (FY 2014 - 2021)

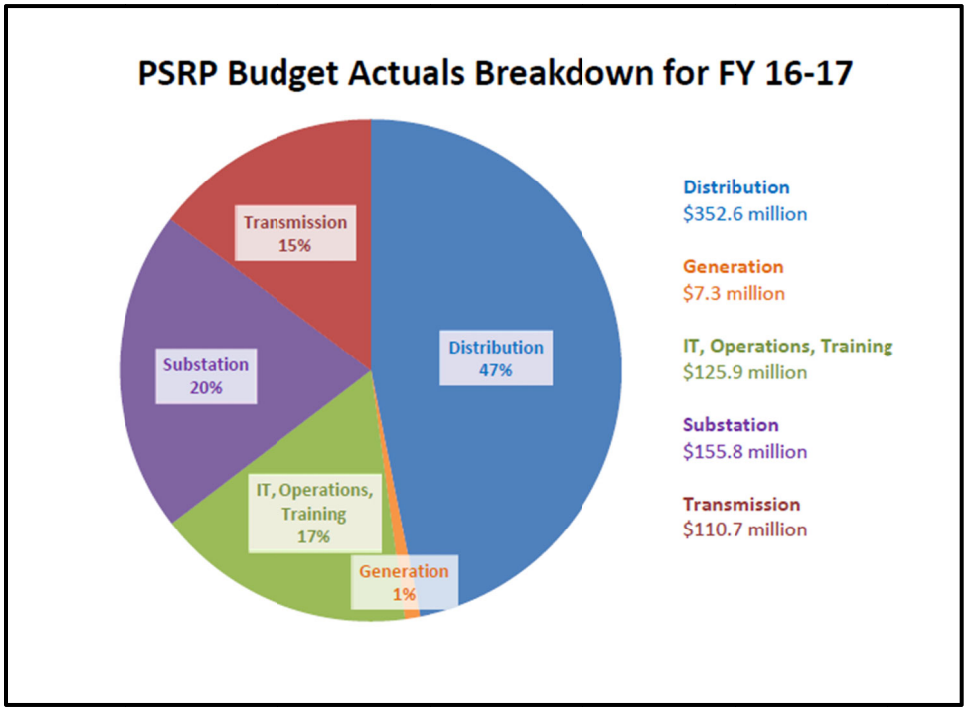


Figure 4: PSRP Budget Actuals Breakdown for FY 2016-17

4.6. WORKFORCE TRAINING

LADWP has implemented rules and corresponding training programs for its workforce to help reduce the likelihood of the ignition of wildfires.

LADWP provides annual training to its employees who have responsibilities related to the Plan. These trainings are provided to the appropriate personnel annually and as-needed if there are any major changes to the Plan. Such training includes, but is not limited to, the following:

- Fire Extinguisher Training
- Working in HFTDs during Red Flag Warning Conditions
- Participating in OEM meetings and both internal and external table top drills and exercises with the other City departments through the Emergency Management Department and the City Emergency Operations Organization

  Table top drills consist of the following topics, activities, and exercises:

  - Brushfire, Earthquake, El-Nino, Tsunami, Damage Assessment Team, Grid-Ex
  - Command and Management activation activities
  - Annual Citywide EOC Exercise
  - Partner Utility/Association Exercises

As an example, LADWP routinely holds a Power System Command and Management Exercise whose objectives is to provide an overview of the ICS, SEMS, and NIMS, provide an overview of Power System command centers, such as the EmCC and the PDOC, and provide an introductory overview on ICS forms and their use. Additional to LADWP's internal training, LADWP also participates in drills and exercises in collaboration with SCPPA, APPA, WRMAG, CUEA, and the City's EOC.

The Plan, presentation, and related materials are reviewed, updated, and disseminated prior to workforce training.

4.7. OPERATIONS AND PROTOCOLS

LADWP's operations and protocols dictate what actions are prohibited, required, or recommended during normal operating conditions or red flag warning conditions. LADWP's operations and protocols also consider Situational Awareness, Collaboration with LAFD, Blocking Reclosers, Incident Based De-energization, Impacts to Public Safety, Customer Notification Protocols, and Communication Infrastructure.

NORMAL OPERATING CONDITIONS

- LADWP crews are required to follow the protocols listed below when working in the LAFD Fire Zones and the CPUC Tier 2 and Tier 3 HFTDs.
  - Clear any dry vegetation at a radius of 10 feet around the pole

- Required at immediate work location:
  - Fire Extinguisher
  - Shovel
  - Radio Communication (i.e. portable radio)
- Prohibited:
  - Using equipment that can create a spark or get hot enough that if laid down could cause a fire (i.e. chain saw)
  - Parking vehicles over dry brush as the exhaust can cause a fire
  - Smoking in these designated areas

RED FLAG WARNING CONDITIONS

- LADWP suspends non-essential work on all Water and Power facilities in the LAFD Fire Zones and the CPUC Tier 2 and Tier 3 HFTDs.
- Only jobs that are essential for public safety or jobs that reduce fire risk will be allowed including:
  - Work for Electric Trouble on power restoration
  - Repair General Order 95 Rule 18 Level 1 and 2 non-conformances which are classified in LADWP's work management system as Priority 1, 2a and 2b Trouble Memo Accelerated Codes (TMACs) and Inspection Maintenance Accelerated Codes (IMACs)
- Clear any dry vegetation at a radius of 10 feet around the pole
- Remind all personnel the following are prohibited during these jobs:
  - Using equipment that can create a spark or get hot enough that if laid down could cause a fire (i.e. chain saw)
  - Parking vehicles over dry brush as the exhaust can cause a fire
  - Smoking in these designated areas
- If work must take place, crews are required to have the following available at the immediate work site
  - Fire Extinguisher
  - Shovel
  - Radio Communication (i.e. portable radio)

SITUATIONAL AWARENESS

LADWP primarily uses the following sources to monitor current and forecasted weather data:

- Santa Ana Winds Threat Index (SAWTi) - https://fsapps.nwcg.gov/psp/sawti
- National Oceanic and Atmospheric Administration (NOAA) - https://www.noaa.gov/
- City of Los Angeles Fire Department Red Flag - https://ers.lafd.org/redflag/

- City of Los Angeles Fire Department Fire Weather - http://lafdweather.blogspot.com/

LADWP's OEM receives and sends email notifications from NOAA's National Weather Service alerting key LADWP personnel of Red Flag Warnings. Once LADWP receives these notifications, whether from NOAA and/or SAWTi, LADWP will do the following:

- Limit all non-essential work for all Water and Power facilities in the HFTDs
- Only perform work required for public safety and to prevent ignition from electrical facilities
- Block reclosers on distributions circuits located within the CPUC Tier 3 HFTDs

ALERTWildfire (http://www.alertwildfire.org) is available to support situational awareness within LADWP's service territory and provide aid to first responders and firefighters in the event of a wildfire. ALERTWildfire is a consortium of three universities (the University of Nevada, Reno, University of California San Diego, and the University of Oregon) which provides access to state-of-the-art fire cameras and associated tools that entities use to enhance situational awareness around wildfire.

COLLABORATION WITH LOCAL FIRE DEPARTMENTS

LADWP is exploring new technologies and methods, including the use of cameras and weather stations, to increase situational awareness. LADWP intends to share relevant and useable information, where feasible, with LAFD and local fire departments within the Owens Valley to provide the ability to monitor potential wildfire risks around LADWP facilities and improve operational response to wildfire threats from LADWP, LAFD, and local fire departments within the Owens Valley.

BLOCKING RECLOSERS

Currently, LADWP's OEM group is responsible for receiving notifications of adverse weather conditions from the National Weather Service and the City Emergency Management Department. LADWP's OEM will forward these notices to affected stakeholders such as ECC for operational planning needs and necessary action. The personnel at the ECC will be responsible for blocking the 4.8kV distribution system reclosers in Tier 3 HFTDs either remotely or by dispatching personnel to reduce wildfire ignition risks. Blocking of 34.5kV reclosers within Tier 3 areas including peddlers and station-to-station lines will be performed based on an *incident* and *prevailing condition* basis.

Similarly, the blocking of all reclosers within Tier 2 will be determined on a condition-or incident-based basis. Blocking of reclosers allows LADWP to minimize the risk of wildfire while mitigating the possible negative impact of service interruption on its customers and the community at large.

INCIDENT BASED DE-ENERGIZATION

LADWP is committed to providing reliable power and improving public safety. Due to LADWP's highly urbanized service territory and circuit configuration, the wildfire risk profile is minimal. Careful assessment of wildfire risks including the impacts of preemptive and wind-event triggered proactive power shut-off procedures were considered during the development of this Plan. However, LADWP has determined that the adverse impact on health, safety, and quality of life of its customers outweighs the perceived benefits derived from pre-emptive power shut-offs. In order to maintain public safety, LADWP executes its de-energization protocols on a per incident basis. As a result, LADWP will de-energize its lines in the event of a disaster such as a wildfire, if it is deemed necessary based on safety and reliability issues.

Within the City of Los Angeles, LADWP operates a 24-hour 7 day a week Electric Trouble Section that responds to power outage related concerns in the distribution system. If LADWP receives a notification regarding a possible hazard, LADWP will send an Electric Trouble Patrol Crew to the hazard to determine the appropriate action. If that crew determines that there as an imminent public safety hazard, they have the authority to call an Electric Trouble Dispatcher and de-energize the power line. LADWP's Electric Trouble Section has direct phone contacts with LAFD and LAPD for any and all emergencies. When LADWP receives a notice of a possible hazard from any of these agencies, LADWP responds immediately without any delay. Within its HFTDs, LADWP's patrol crews patrol the entirety of the de-energized circuit prior to re-energization. The patrol crew, in conjunction with Electric Trouble, then determines what is needed to either: make any necessary repairs and to re-energize the line or isolate the hazard through switching and re-energize the line from another source. Typically, the average length of outage in LADWP service territory is under 2.5 hours.

Within LADWP's Owens Valley service territory, LADWP, in coordination with the Inyo County Sheriff's Office, Cal Fire, Inyo National Forest and Local Volunteer Fire Departments, patrol the HFTDs to determine the appropriate action such as de-energizing the circuit. Within its HFTDs, LADWP's patrol crews patrol the entire de-energized circuit prior to re-energization.

Due to the nature of incident based de-energization, some notifications will be after the de-energization event. LADWP will enact the appropriate actions per LADWP internal policies to ensure personnel and customer safety in compliance with federal and state requirements.

In the event where Southern California Edison (SCE) notifies LADWP of an impending SCE Public Safety Power Shutoff in areas where LADWP has customers in fringe that will be impacted by the shutoff, LADWP takes proactive actions including dispatching personnel to patrol the impacted areas prior to the declared power shutoff and conduct another patrol of the impacted lines and areas prior to re-energization of the electric lines to fully assess and

monitor safety issues that may affect its customers. During such operations, LADWP will maintain continuous communication with SCE operations office.

LADWP will also consider the impacts included herein:

IMPACTS TO PUBLIC SAFETY

In the City of Los Angeles, LADWP considers impacts to public safety and has developed protocols in the event of any unplanned outages. When an outage occurs, LADWP Electric Trouble Section notifies LAPD, LAFD, and the City Council District for the area affected. The information given includes the area affected by the outage, the estimated time of restoration, and any updates throughout the outage period including time of actual restoration. LAPD and LAFD are also notified of any Life Support Equipment recipients that are affected. Customer Call Center will notify these recipients and provide them with the same information and updates. In addition to the outside agency notification, the following parties within LADWP are notified:

- City of Los Angeles Board of Water and Power Commissioners
- General Manager
- Sr. Assistant General Manager of Power System Construction, Maintenance, and Operation
- Sr. Assistant General Manager of Power System Engineering, Planning, & Technical Services
- General Counsel of the Los Angeles City Attorney's Office
- Director of Power Transmission & Distribution Division
- Director of Energy Control and Grid Reliability Division
- Director of Power Construction & Maintenance Division
- Director of Power Supply Operations
- Director of Power Planning, Development, and Engineering Division
- Director of Clean Grid – Strategy Division
- Director of Power New Business Development and Technology Applications
- Director of Power Regulatory Compliance and Specifications
- Director of Water Operations
- Director of Water Distribution
- Office of Emergency Management
- Communications, Media, & Community Affairs
- Key Accounts

The Key Accounts Representative will take the information they received and determine if there are any schools, hospitals, and other emergency services affected by the outage, and provide them with notifications and updates.

Within LADWP's service territory in Owens Valley, LADWP, in coordination with the Inyo County Sherriff's Office, Cal Fire, Inyo National Forest, and Local Volunteer Fire

Departments, will patrol the Elevated Fire Threat Areas to determine the appropriate action such as notifying the affected stakeholders and communities.

CUSTOMER NOTIFICATION PROTOCOLS

Information for affected customers may be found on LADWP's Outage Management Website linked below:

https://www.ladwp.com/ladwp/faces/header/outageinformation

This site can also be accessed by going to ladwp.com and clicking on the top right corner "Power Outages". A sample of what the customers will be able to see from the website is shown in the figure below.

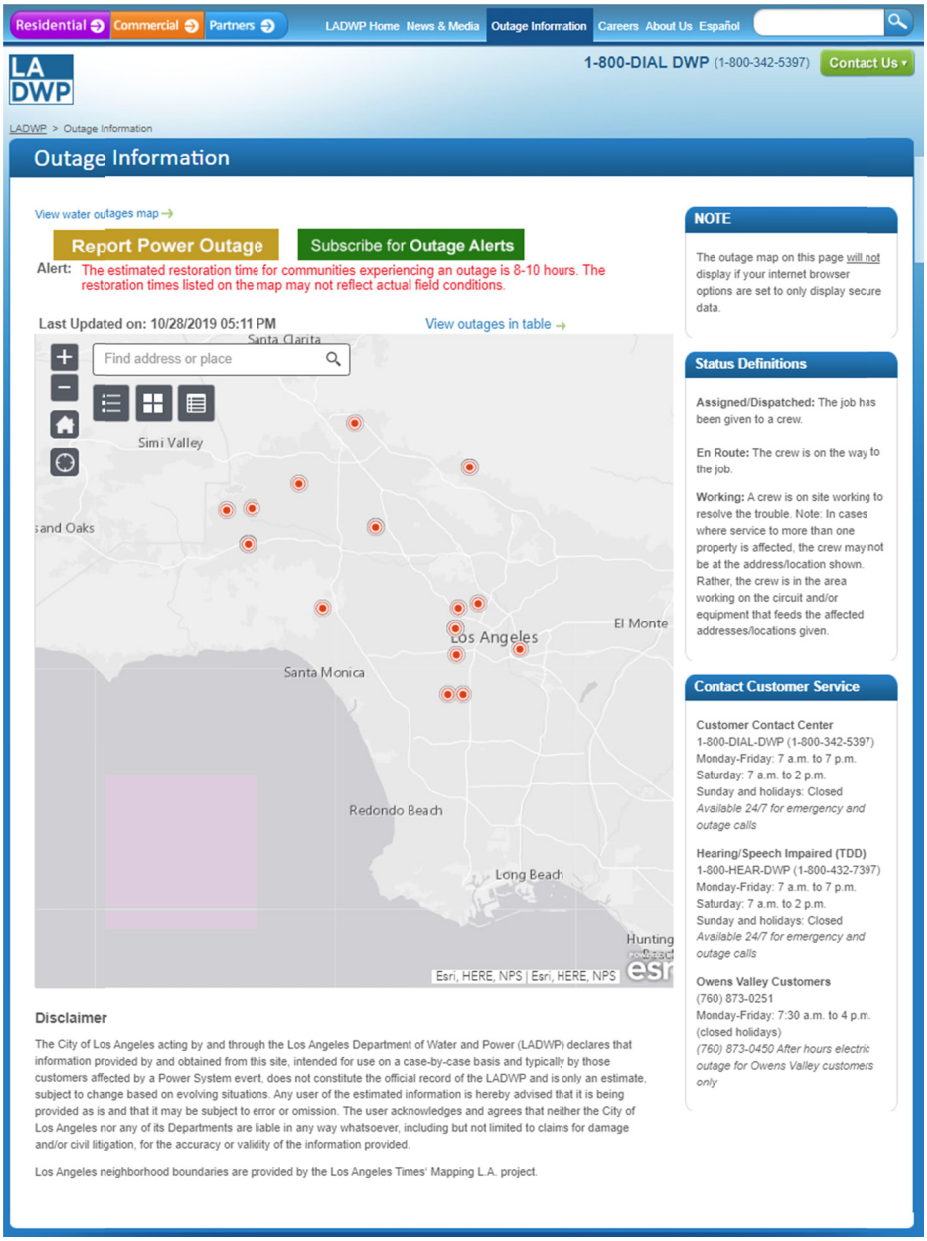


Figure 5: LADWP Outage Management System

LADWP also notifies affected customers of outages within its service territory via text message. In order to receive these notifications, customers must register for LADWP's Outage Alerts via its Outage Management Website as seen above.

COMMUNICATION INFRASTRUCTURE

LADWP's communication infrastructure is necessary to ensure information sharing can be maintained with all critical stakeholders, including other City departments, SCPPA, and CUEA, during an emergency.

A local emergency can impact heavily upon the City's communications systems, especially those resources dedicated to immediate response efforts. LADWP's Power System utilizes the following communication devices and systems for primary and redundant communication needs:

- Vehicle and Handheld Radios (Low Band, Ultra-high Frequency, and 900 MHz)
- Voice Over Internet Protocol Telephone System
- Cellular Phones
- Satellite Phones
- Dedicated Power Operations Phone System (DPOPS)
- Microwave Communication System
- Data Systems

LADWP has satellite phones assigned to Power System Senior Assistant General Managers, Power System employees, facilities, and mobile command centers.

Per LADWP's incident-based de-energization policy (See Section 4.7. "Operations and Protocols" for more details), LADWP will only de-energize if there was an immediate hazard to public safety, personnel safety, or as instructed by LAFD. This instruction will require LADWP to act immediately without any delay. Any coordination between LADWP and Communication Infrastructure Providers will be filtered through Electric Trouble if there was damage to communication lines. However, if time permits, LADWP will take the necessary steps to notify affected stakeholders.

5. RESTORATION OF SERVICE

5.1. WILDFIRE RESPONSE AND RECOVERY

LADWP will take all reasonable and practicable actions to prevent and suppress fires resulting from our electric facilities. Ongoing communications ensure necessary actions are also taken outside of emergency conditions. For instance, there is elevated communication during red flag warning conditions. LADWP will implement the following recovery steps after an emergency event takes place:

- Maintain Core Services
- Internal Debrief
- After Action Reporting

    - Best Practices & Strengths
    - Lessons Learned, Gaps, and Weaknesses
    - Improvement Planning
- Plan for Restoration
- Prepare for Federal and State Public Assistance
- Streamline Rebuilding Process Where Possible

The Plan is designed for disaster preparation, response, and safe and efficient recovery from any type of outages caused by exogenous forces including those resulting from wildfires. Additional information on activities performed during and after wildfire events is provided in Section 2.13.

6. COMMUNITY OUTREACH AND PUBLIC AWARENESS

LADWP will present its Plan to its Board of Water and Power Commissioners. The annual LADWP Board Presentation will allow for public engagement, opportunity for public commenting, , solicitation of feedback from the LADWP Board, and sharing of any pertinent public service announcements. Keeping LADWP's customers informed is of utmost importance. For this reason, LADWP will develop and present updates in various outreach meetings.

7. EVALUATING THE PLAN

7.1. METRICS AND ASSUMPTIONS FOR MEASURING PLAN PERFORMANCE

As part of its wildfire mitigation measures, LADWP plans to monitor and track the following Electric Trouble metrics associated with circuit events, as applicable, in order to measure the Plan's performance and make necessary improvements.

- Device Number
- Address/Location
- Community
- District
- Outage Clues
- Job Date
- Potential Cause(s) such as:
    - Animals
    - Balloons
    - Equipment
    - Earthquake
    - Fire
    - Lightning
    - Vandalism
    - Vegetation

    - Undetermined
- Dispatch Time
- LAFD Fire Zones, Tier 2 and Tier 3 High Fire Threat Districts
- Repair Status

LADWP also plans to monitor and track its inspections and results of those inspections for its transmission and distribution system. For subsequent years, the output of these metrics will be evaluated to determine potential improvements on its construction standards and for infrastructural and operational needs. This will allow LADWP to look for existing causes and its associated risks to be reduced. LADWP plans to prioritize its preventative and mitigating activities for operations based on the output of these metrics. These metrics could be used to re-evaluate LADWP's vegetation management program, inspection and maintenance programs, and future potential projects.

In addition, LADWP will measure the Plan's performance by evaluating the goals and achievements of its PSRP with respect to infrastructure in the HFTDs. Based on this assessment, LADWP will be able to more effectively target specific infrastructure replacement needs.

In future Wildfire Mitigation Plans, LADWP will provide information on fires that occurred within LADWP's HFTDs and service territory. This information would include, but is not limited to, the number of fires, the source of ignition, its location, the size of the fire and how the fire was extinguished. These updates will ultimately be presented annually to the Board. Furthermore, for major fire incidents involving LADWP equipment, LADWP staff will provide timely updates to the Board and the City policy makers. These annual and incident-based updates will provide wildfire risk insights to our key decision makers.

7.2. IMPACTS OF METRICS ON PLAN

In the initial years, LADWP anticipates that there will be relatively limited data gathered through these metrics. However, as the data collection history becomes more robust, LADWP will be able to identify areas of its operations and service territory that are disproportionately impacted. LADWP plans to use the aforementioned metrics to evaluate its Wildfire Mitigation Plan and investigate potential improvements to the Plan.

7.3. MONITORING AND AUDITING THE PLAN

LADWP will continually update this Plan as its wildfire mitigation strategies evolve over time, assessing all aspects to determine where further enhancements are needed. LADWP will review and update this Plan on an annual basis with comprehensive updates performed triennially. These updates will be presented to LADWP's Board and submitted to the California Wildfire Safety Advisory Board in accordance with Senate Bill 901 and Assembly Bill 1054, respectively. Additionally, per Senate Bill 901, LADWP has contracted with a qualified Independent Evaluator to review and assess the comprehensiveness of this Plan and present its report to LADWP's Board. LADWP will also internally monitor and audit the successful implementation of the

Wildfire Mitigation Plan including relevant activities related to its transmission and distribution systems.

7.4. IDENTIFYING AND CORRECTING DEFICIENCIES IN THE PLAN

As a critical step, LADWP will review the Plan annually and adjust, if necessary, to lower the risk of wildfire due to its electrical lines. The Power Executive Office will oversee, monitor, review, and address deficiencies in the plan to address any potential performance challenges. All stakeholders listed in Sections 2.2. through Section 2.13 will be empowered to provide corrective actions for improvement of the established metrics during the execution of the mitigation plan.

8. INDEPENDENT EVALUATOR

Public Utilities Code section 8387(c) requires LADWP to contract with a qualified independent evaluator with experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of this Wildfire Mitigation Plan. The independent evaluator must issue a report that is posted to LADWP's website. This report will also be presented to LADWP's Board at a public meeting.

9. CONCLUSION

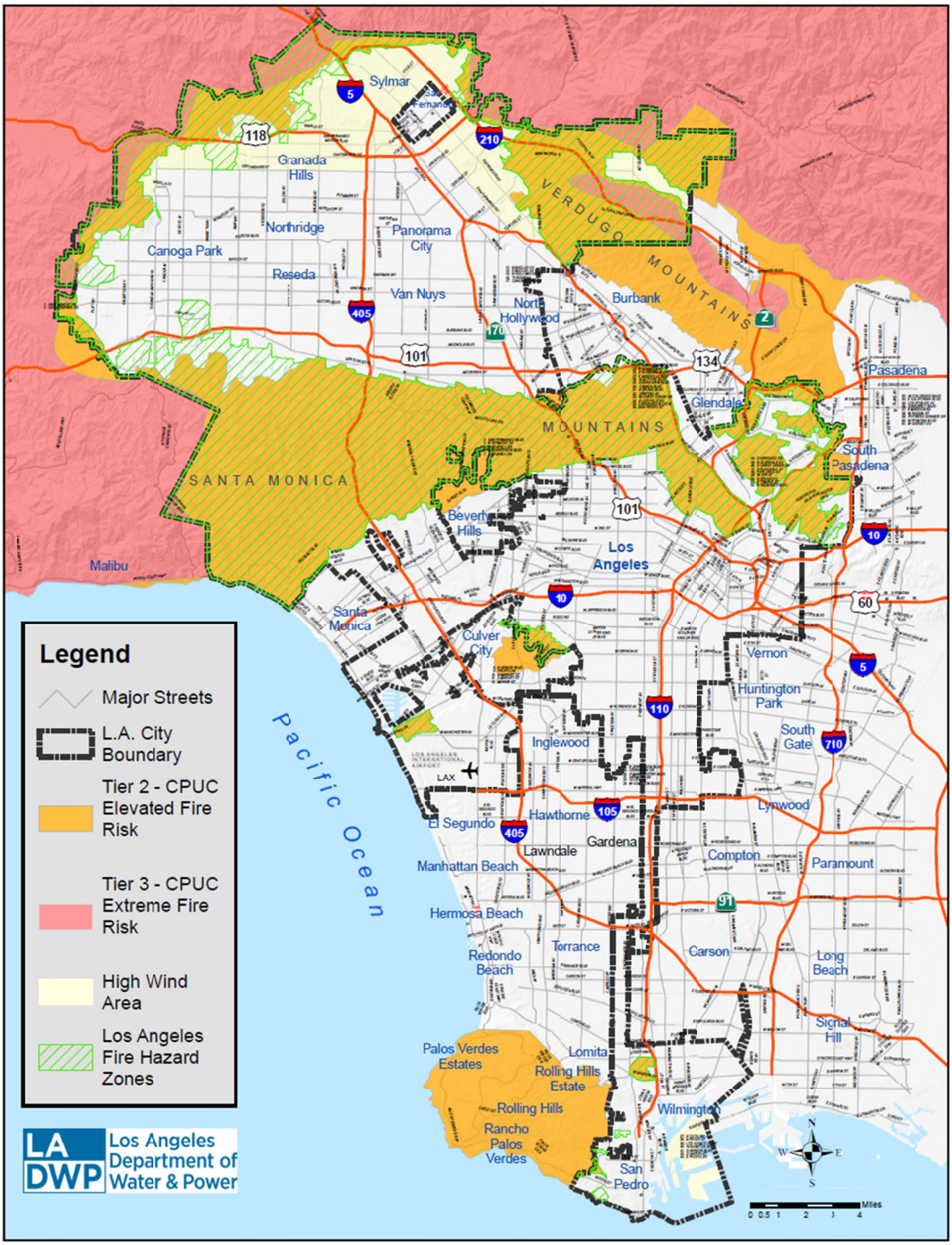
Despite having a mostly urban service territory, LADWP understands the reality of increasing wildfire risks due to climate change. Since 2008, LADWP has taken significant steps to proactively harden its infrastructure to mitigate the risk of wildfire caused by its electrical equipment. In addition to the current wildfire mitigation strategies identified in this Plan, LADWP continually seeks to enhance its existing practices. LADWP looks forward to exploring new technologies to better assess and mitigate wildfire risks, as well as pursuing new partnerships to further collaborate with industry experts and advance its wildfire mitigation solutions. LADWP strives to maintain the safety of its customers and is committed to overcoming the challenges of addressing wildfire risks.

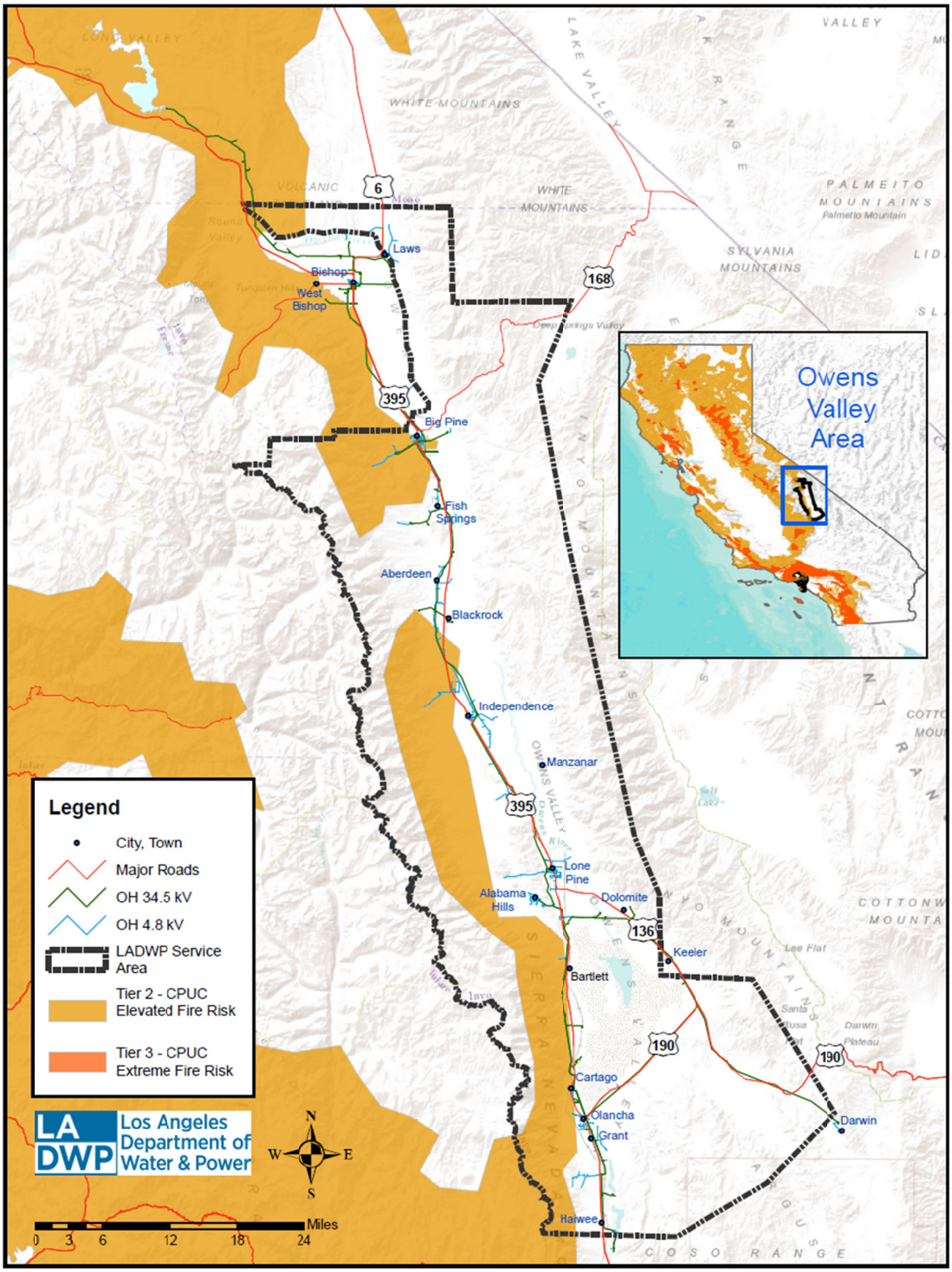
10. REVISION HISTORY

Date	Revision
12/09/2019	Initial Version.

11. APPENDICES

APPENDIX A. LADWP FIRE THREAT MAP

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Legend
City, Town
Major Roads
OH 34.5 kV
OH 4.8 kV
LADWP Service Area
Tier 2 - CPUC Elevated Fire Risk
Tier 3 - CPUC Extreme Fire Risk
LA DWP Los Angeles Department of Water & Power
N
W
E
S
Miles
0 3 6 12 18 24
Laws
Bishop
West Bishop
Big Pine
Fish Springs
Aberdeen
Blackrock
Independence
Manzanar
Lone Pine
Alabama Hills
Dolomite
Keeler
Bartlett
Cartago
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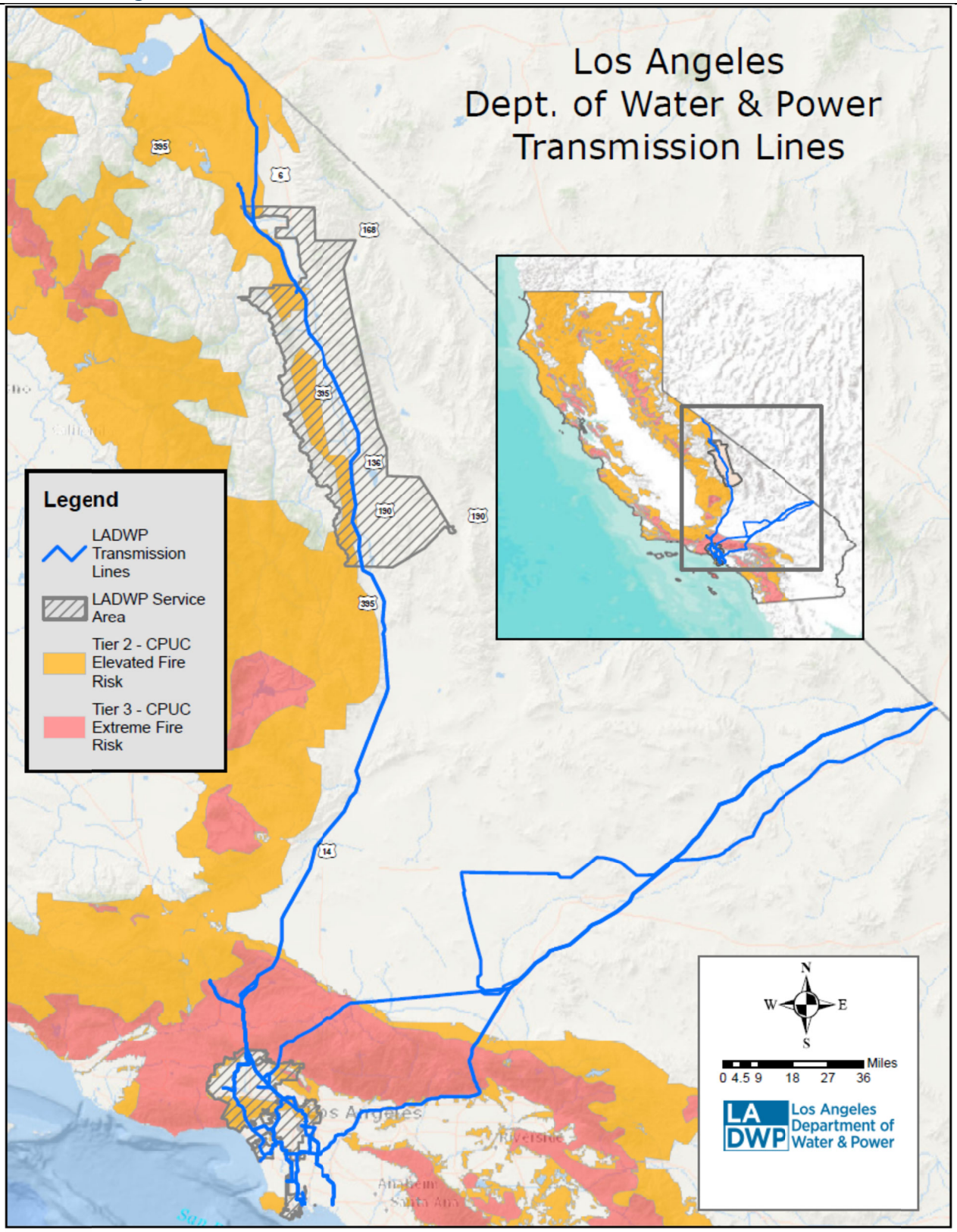
Los Angeles
Dept. of Water & Power
Transmission Lines
Legend
LADWP Transmission Lines
LADWP Service Area
Tier 2 - CPUC Elevated Fire Risk
Tier 3 - CPUC Extreme Fire Risk
N
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S
Miles
0 4.5 9 18 27 36
LA DWP
Los Angeles Department of Water & Power