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Subject: Independent Evaluator's Report of the Los Angeles Department of Water and Power 2023 Wildfire Mitigation Plan

1 Introduction

The Los Angeles Department of Water and Power (LADWP) contracted with Dudek to independently evaluate its 2023 Wildfire Mitigation Plan (WMP). This independent evaluation report describes the technical review and evaluation of the WMP prepared by the LADWP. The WMP requirements are codified in California Public Utilities Code (PUC) Section 8387(b)(2) for local publicly owned electric utilities (POUs). PUC Section 8387(c) requires that an independent evaluator review and assess the comprehensiveness of a POU's WMP and issue a summary report. The year 2023 is important for POUs because they are required by PUC Section 8387(b)(1) to comprehensively revise their WMPs "at least once every three years."

Dudek reviewed LADWP 's 2023 WMP from September to November 2023. The focus of the evaluation was to determine the comprehensiveness of the WMP and ensure it included all elements required under PUC Section 8387(b)(2) (listed in Attachment A).

This Independent Evaluator's report contains the following elements: (1) an overview of the LADWP service territory, (2) A review of the statutory requirements in PUC Section 8387(b)(2) for local POUs,

2 An Overview of the Los Angeles Department of Water and Power

LADWP provides electricity to two regions. The first is LADWP's service territory, which covers the city limits of the City of Los Angeles, and the second is the region that covers Owens Valley. These two service territories differ regarding the type of equipment and facilities LADWP operates and the wildfire risk environment present. In addition to these two service territories, LADWP owns and operates several high-voltage transmission lines that extend across California and into neighboring states to the state's north, northeast, and shorter transmission line sections.

The service territory within the city limits of the City of Los Angeles is composed mainly of fully developed urban areas with undeveloped areas with natural vegetation communities on the hillsides surrounding the Los Angeles basin (Santa Monica Mtns., Verdugo Mtns., San Gabriel Mtns.). LADWP's assets in this region are composed of

overhead and underground distribution and transmission facilities and equipment; this region contains most of LADWP's customers (1.6 million), so the bulk of their assets in this region (by circuit miles and facility type) is distribution. Tier 2 and Tier 3 High Fire Threat Districts (HFTD) are present in the hillside areas along the perimeter of this region/along city limits. An area of Tier 2 HFTD traverses the middle of this region in the Santa Monica Mountains. The minority of this region is located within a Tier 2 HFTD. These areas have vegetation and terrain conducive to the spread of a wildfire, with extreme fire behavior possible in areas with steep slopes and dense chaparral. The remaining area of this region is not located within an HFTD, is highly urbanized, and is unlikely to contain conditions that could support a wildfire.

The Owens Valley service territory comprises a mix of undeveloped land, agricultural land, and urban areas. Undeveloped and agricultural are the dominant land uses by land area. Urban and developed areas are relatively small and widely spaced. LADWP's assets in this region are composed primarily of overhead transmission and sub-transmission facilities and equipment; however, this region does serve a small number of customers (5000) and contains some distribution assets. Tier 2 HFTDs are present along the west side of this region along the hillsides at the base of the Sierra Nevada Mountains, extending down to Highway 395 at the bottom of Owens Valley. LADWP's transmission and sub-transmission assets in this region follow or tie into the lines along Highway 395, so a small portion of their assets are located within an HFTD. Except for the scattered urban areas and agricultural lands, this region is covered with continuous vegetation (sage scrub) that could support wildfire spread when conditions are right. It should be noted that LADWP has significantly less infrastructure in this region than the region contained within the Los Angeles city limits.

LADWP's high-voltage transmission lines comprise substations or terminals, transmission lines, and towers. These transmission lines transmit bulk power between generating stations within and out of state. Portions of LADWP's transmission lines pass through their Los Angeles and Owens Valley service territories. Transmission line path lengths vary from less than 1 mile to several hundred miles. The longer transmission line paths cross much of the state and traverse various terrain and vegetation types. Several transmission line paths (e.g., Pacific DC Intertie and Southern Transmission System) pass through the tier 2 and tier 3 HFTDs in the mountains north of Los Angeles and San Bernadino.

3 Statutory Requirements for Wildfire Mitigation Plans

Public Utility Code Section 8387(b)(2) lists the statutory requirements for WMPs. These are the specific elements that the independent evaluator must review to make its determination for this report. The specific elements that must be addressed in LADWP 's WMP are summarized in this chapter.

3.1 Roles & Responsibilities

Public Utility Code 8387(b)(2)(A) An accounting of the responsibilities of persons responsible for executing the plan.

COMPLIANT. WMP contains a detailed description of the LADWP organization, including the divisions and staff roles responsible for implementing the wildfire prevention strategies described in the WMP. Responsibility for implementing the WMP belongs to the Power System Executive Office.

3.2 General objectives

Public Utility Code 8387(b)(2)(B) The objectives of the wildfire mitigation plan.

COMPLIANT. The WMP contains three objectives relevant to reducing the risk that LADWP equipment is responsible for igniting a wildfire.

3.3 Wildfire Preventative Strategies

Public Utility Code 8387(b)(2)(C) A description of the preventive strategies and programs to be adopted by the local publicly owned electric utility or electrical cooperative to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.

COMPLIANT. The WMP contains a detailed explanation of LADWP's wildfire prevention strategies, including vegetation management, vegetation, and equipment inspections, system upgrades, and situational awareness.

3.4 Metrics

Public Utility Code 8387(b)(2)(D) A description of the metrics the local publicly owned electric utility or electrical cooperative plans to use to evaluate the wildfire mitigation plan's performance and the assumptions that underlie the use of those metrics.

COMPLIANT. LADWP WMP uses several performance, reliability, outcome, and external-based metrics to evaluate the effectiveness of their WMP. Their metrics are relevant to the above-ground equipment and facilities the utility uses and the conditions present in their service territory.

3.4.1 Previously Identified Metrics

Public Utility Code 8387(b)(2)(E) A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.

COMPLIANT. The WMP describes how previously collected metric data has been used to confirm the effectiveness of LADWP's wildfire prevention programs.

3.5 Protocols for Recloser Schemes and De-energization

Public Utility Code 8387(b)(2)(F) Protocols for disabling reclosers and de-energizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and health and communication infrastructure.

COMPLIANT. LADWP's WMP describes their protocol for disabling automatic reclosers based on the equipment type. LADWP does not use pre-emptive de-energization. The WMP does describe the utility's protocols for emergency or incident-based de-energization.

3.6 Customer Notification Procedures

Public Utility Code 8387(b)(2)(G) Appropriate and feasible procedures for notifying a customer who may be impacted by the de-energizing of electrical lines. The procedures shall direct notification to all public safety offices, critical first responders, health care facilities, and operators of telecommunications infrastructure with premises within the footprint of potential de-energization for a given event.

COMPLIANT. The WMP describes a comprehensive notification system for first responders and critical infrastructure that includes notification of unplanned outages. Since LADWP doesn't utilize preventive de-energization as a wildfire prevention strategy

3.7 Vegetation Management

Public Utility Code 8387(b)(2)(H) Plans for vegetation management.

COMPLIANT. The WMP describes the LADWP's vegetation management program, including inspection and tree-trimming practices. The vegetation management section of the plan details which treatment technique the utility uses in its vegetation management program.

3.8 Electrical Equipment and Infrastructure Inspection

Public Utility Code 8387(b)(2)(I) Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.

COMPLIANT. The WMP contains a detailed description of the LADWP inspection program, including the types of inspections performed and the frequency for each type.

3.9 Prioritization of Wildfire Risks

3.9.1 Risks and Risk Drivers Associated with Design, Construction, Operation, and Maintenance of Equipment and Facilities

Public Utility Code 8387(b)(2)(J(i)*) Risks and risk drivers associated with design, construction, operation, and maintenance of the local publicly owned electric utility's or electrical cooperative's equipment and facilities.*

COMPLIANT. The WMP contains a general description of the design, construction, operation, and maintenance risk drivers in LADWP territory.

3.9.2 Risks and Risk Drivers Associated with Climatological and Topographical Factors

Public Utility Code 8387(b)(2)(J(ii)*) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the Identification of any geographic area in the local publicly owned electric utility's or electrical cooperative's service territory that is a higher wildfire threat than is identified in a commission fire threat map, and identification of where the commission should expand a high fire-threat district based on new information or changes to the environment. A local publicly owned electric utility or electrical cooperative's service territory.*

COMPLIANT. The WMP contains a general description of the climate and topographical risk drivers in LADWP territory.

3.10 CPUC Fire Threat Map Adjustments.

*Public Utility Code 8387(b)(2)(*K*) Identification of any geographic area in the local publicly owned electric utility's or electrical cooperative's service territory that is a higher wildfire threat than is identified in a commission fire threat map and identification of where the commission should expand a high fire-threat district based on new information or changes to the environment.*

COMPLIANT. The WMP does not explicitly state that the LADWP has identified areas within the service territory that are a higher threat than the HFTD maps issued by the state. LADWP helped create the HFTD maps for their service territory. In coordination with the Los Angeles Fire Department, the LADWP has developed its fire hazard zone map. The portion of LADWP's service territory within Los Angeles city limits included in the Los Angeles Fire Hazard Zone incorporates the entire extent of the HFTDs in the Los Angeles area, and some areas of the City extend beyond the HFTD boundaries.

3.11 Methodology for Identifying Enterprise-Wide Risk

*Public Utility Code 8387(b)(2)(*L*) A methodology for identifying and presenting enterprise-wide safety risk and wildfire-related risk.*

COMPLIANT. The WMP describes the comprehensive risk assessment process used by the LADWP to evaluate risk in their operations. Pages 21-22 show the risk bow tie model used by LADWP.

3.12 Restoration of Service

*Public Utility Code 8387(b)(2)(*M*) A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.*

COMPLIANT. The WMP describes the LADWP's steps to restore service after a wildfire.

3.13 Monitoring and Auditing the WMP

3.13.1 Monitor and Audit the implementation of the WMP

*Public Utility Code 8387(b)(2)(*N*)(i) Monitor and audit the implementation of the wildfire mitigation plan.*

COMPLIANT. The WMP describes LADWP's internal and external monitoring and auditing program for the WMP and wildfire risk. LADWP has a department-wide WMP committee and numerous sub-groups to cover various topics that require further attention explicitly established for the review of their WMP.

3.13.2 Identifying Deficiencies

*Public Utility Code 8387(b)(2)(*N*)(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation and correct those deficiencies.*

COMPLIANT. The WMP describes the internal groups that review the WMP. The WMP is reviewed on an annual basis.

3.13.3 Monitor and Audit the Effectiveness of Inspections

*Public Utility Code 8387(b)(2)(*N*)(iii) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, that are carried out under the plan, other applicable statutes, or commission rules.*

COMPLIANT. The inspection and maintenance section in the WMP describes the LADWP's process for reviewing inspections and adjusting their inspection program as needed.

3.14 PUC 8387(c) Qualified Independent Evaluator's Report

The independent review of LADWP's 2023 WMP and the preparation of the Independent Evaluator's report was performed by Dudek. Dudek's review focused on confirming the WMP's compliance with PUC requirements for a WMP prepared by a publicly owned utility. Dudek also evaluated the effectiveness of the WMP by comparing the wildfire risk and risk drivers identified in the WMP to the wildfire prevention programs described in the WMP.

Dudek is an environmental consulting company that provides services to move projects forward through the complexities of regulatory compliance, budgetary and schedule constraints, and conflicting stakeholder interests. Dudek works in various sectors, including water, energy, transportation, industrial, and development. Dudek's fire prevention group consists of fire prevention experts, including former fire prevention officials and fire behavior modeling experts. Dudek has reviewed WMPs and prepared Independent Evaluator's reports for 15 POUs since 2020.

Dudek found that LADWP 's WMP meets the statutory requirements for comprehensiveness per PUC Section 8387.

4 Wildfire Mitigation Plan Metric Overview

Metrics help POUs determine if their wildfire prevention strategies effectively reduce the risk of a wildfire ignited by their electrical equipment. Effective metrics track data related to wildfire risks and risk driver events such as wires down or outages to identify events with the potential to create new ignitions. Effective metrics also track a utility's progress in completing the wildfire prevention strategies intended to reduce the likelihood of a wildfire being ignited by one of the risks or risk drivers. Finally, effective metrics track data that can be compared to metric data published by similar utilities.

The LADWP tracks and monitors several metrics to determine the effectiveness of their WMP. These metrics are categorized by metric type and include external risk, outcome, reliability, and performance metrics. Data collected for the metrics in each category is tracked by whether it is located within an HFTD or outside of an HFTD. Metrics data tracked includes the following categories:

External Metrics

- Number of Red Flag Warnings and Alerts

Outcome Metrics

- Outages. This metric is tracked by asset type and outage cause.

Reliability Metrics

- Interruption Frequency and Duration

Performance Metrics

- Distribution Patrol and Detailed Inspections.
- Transmission Patrol and Detailed Inspections
- Vegetation Management Work Completed (Trees Trimmed).

The metrics used in LADWP's WMP are effective for informing the utility about the effectiveness of its wildfire prevention strategies. The collected outcome metric data, specifically outage information by cause, allows the utility to track events that have the potential to ignite a wildfire, such as vegetation contact with wires. Detailed information about each event, including location and date, allows the utility to identify areas within their service territory or during the year when the wildfire risk is higher. The collected performance metric data allows the utility to track monthly and annual inspection and vegetation management program progress. This metric data allows the utility to determine if the wildfire prevention program timelines identified in the WMP are obtainable. When combined with outcome metric data, LADWP can identify areas where wildfire prevention programs can be modified to make them more practical, such as completing inspections in the HFTD before a set date each year or performing vegetation management (tree trimming) in areas so that the areas with the highest frequency of outages due to vegetation contact are trimmed more frequently.

6 Conclusion

The LADWP has prepared a comprehensive WMP for 2023. The WMP meets all statutory requirements described in PUC Section 8387(b)(2) for a POU. The LADWP's WMP, with the provided appendices, describes a wildfire prevention program that accurately assesses the risks and risk drivers present in their service territory and implements preventative strategies that effectively reduce the wildfire risk of these risks and risk drivers.

Based on the wildfire prevention programs described in the WMP and the progress the LADWP has made in its wildfire prevention programs, the LADWP is taking an active role in minimizing the risk its equipment starts a wildfire and minimizing the risk a wildfire near their facilities can impact their operations.

Sincerely,

Jeremy Cawn
Fire Protection Planner

9 References

Los Angeles Department of Water and Power. 2022. 2022 Power Strategic Long-Term Resource Plan. Los Angeles Department of Water and Power. December 2022. Los Angeles, California. Retrieved from: Strategic Long-Term Resource Plan (ladwp.com)

California Public Utilities Commission. 2022. CPUC Fire Threat Map. California Public Utilities Commission. Sacramento. Retrieved from: CPUC High Fire Threat District (HFTD) (arcgis.com)

10 Recommended Changes

No changes are necessary to LADWP's WMP to comply with PUC 8387(b)(2), and the WMP comprehensively describes the utility's wildfire prevention programs. This report chapter contains a list of recommended changes to the WMP to improve clarity or move information into the correct section of the WMP.

- 7.3 Previously Identified Metrics- Remove or revise the first paragraph from this section. The information in the second and third paragraphs contradicts the first paragraph since the metric data collected to date demonstrates the plan's effectiveness.

- 4.3 Vegetation Management- Add a description of the program LADWP has for managing surface vegetation (grass, brush, etc.) around its facilities in the HFTDs.

- 4.4 Inspections- The WMP describes areas of your service territory that are inaccessible due to rugged terrain. Describe how your inspection procedures are modified for the equipment in rugged terrain.

- 3.1-3.3 Risks and Risk Drivers- Risks and risk drivers are described in these sections and identified elsewhere in the WMP (e.g., chapter 4) in the wrong section. For example, expulsive fuses are mentioned in Chapter 4 but not identified in 3.3. High winds in specific areas (mountain passes, high desert) are identified in 3.3 but not in 3.1. Review chapters 3 4 and reorganize the risk and risk drivers listed so each is in its correct section.

- Dudek recommends adding details regarding specific areas of higher risk, such as the elements the Power System Reliability Program addresses. Some section J(i) risk drivers are described in other WMP areas (e.g., Chapter 4)