Wildfire Mitigation Plan Independent Evaluation

Prepared for:

City of Lompoc

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DISCLAIMER

This report was prepared by Guidehouse, Inc., f/k/a Navigant Consulting, Inc. ("Guidehouse"),[1] for the City of Lompoc, Lompoc Electric ("LE"). The work presented in this report represents Guidehouse's professional judgment based on the information available at the time this report was prepared. Guidehouse is not responsible for the reader's use of, or reliance upon, the report, nor any decisions based on the report. GUIDEHOUSE MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESSED OR IMPLIED. Readers of the report are advised that they assume all liabilities incurred by them, or third parties, as a result of their reliance on the report, or the data, information, findings and opinions contained in the report.

[1] On October 11, 2019, Guidehouse LLP completed its previously announced acquisition of Navigant Consulting Inc. In the months ahead, we will be working to integrate the Guidehouse and Navigant businesses. In furtherance of that effort, we recently renamed Navigant Consulting Inc. as Guidehouse Inc.

EXECUTIVE SUMMARY

City of Lompoc, Lompoc Electric ("LE"). contracted with Guidehouse, Inc. f/k/a Navigant Consulting, Inc. ("Guidehouse") to engage in an independent evaluation of its Wildfire Mitigation Plan ("Plan" or "WMP"). This independent evaluation report ("Report") describes the technical review and evaluation provided by Guidehouse. Guidehouse performed this evaluation between June and July of 2020 and completed the Report on July 10, 2020. Guidehouse's project team reviewed detailed information related to the Plan and assessed LE's procedures related to the Plan.

The Plan was prepared as a response to SB 901, which was signed into law on September 21, 2018. SB 901 resulted in a number of provisions and directives, among which includes the requirement for electric utilities to prepare and adopt plans and revise and update the plan annually thereafter. These requirements are codified in the California Public Utilities Code ("PUC") Section 8387 for publicly owned utilities ("POUs"). This plan was also posted to LE's public website.

Guidehouse evaluated LE's wildfire mitigation plan based on the statutory requirements of PUC Section 8387 as it relates to POUs. This PUC Section was amended on July 12, 2019 as a result of the signing of California's Assembly Bill (AB) 1054 into law. AB 1054 amended Section 8387(b)(1) to include a provision that requires POU's to "submit the plan to the California Wildfire Safety Advisory Board on or before July 1 of each year" (beginning in 2020) and conduct mandatory cyclical revisions. The required elements for a plan have not been modified by this new legislation.

This Report meets the requirement imposed on LE under PUC Section 8387(c), which mandates an independent evaluation of LE's Plan. The Report was developed to satisfy the statutory requirement for public review. This Report also serves as the basis for an upcoming presentation to the governing body of LE at a public meeting of the Lompoc City Council. The Report includes the following:

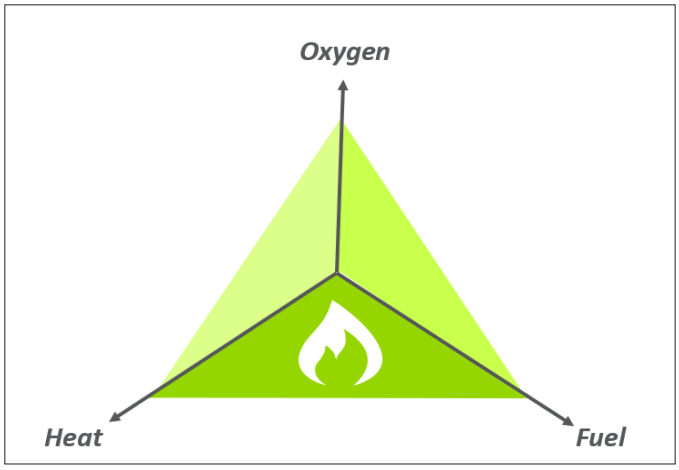
- Background of the legislative history requiring wildfire mitigation plans and their independent evaluations
- Approach and methodology evaluating a plan's comprehensiveness
- LE's Plan elements and their compliance with SB 901 and PUC Section 8387 wildfire mitigation plans elements and directives
- An evaluation of the Plan's presented metrics to assess the effectiveness of the overall Plan
- Determinations and results

Based on relevant experience in grid hardening and resiliency, natural disaster response, prior experience in wildfire mitigation plan development, and active tracking of wildfire legislative and regulatory proceedings Guidehouse has concluded that LE's WMP is comprehensive and meets the statutory requirements in accordance with PUC section 8387.

1. BACKGROUND

In recent years, California has seen an increase in utility equipment-involved, catastrophic wildfires. The unique geographic profile of California and the impacts of climate change, including continued dry conditions, high winds, and elevated heat index risk from global rising temperatures, have led to elongated fire seasons. The state is also experiencing increased levels of vegetation fuel due to the wet winters, hotter summers following a seven-year drought, and past fire suppression efforts. This increasingly abundant dry vegetation is the leading driver of wildfires. The levels of dry vegetation fuel have been aggravated by a destructive bark beetle infestation that continues to impact the health of the state's forested areas, further increasing fire risk. These fuel-rich environments, coupled with intensified climatological conditions with high wind gusts and natural electrical infrastructure risks, produce the conditions conducive to potential wildfire ignition. The three attributes that provide optimal conditions for a fire ignition are illustrated through the graphic in Figure 1: Fire Triangle.

Figure 1: Fire Triangle



Disastrous wildfire threat is a well-known and shared priority among electric utilities in California. The recent spike in utility-involved wildfire incidents since the 2015 wildfire season and the significant financial and livelihood impacts associated with them have led to more formalized efforts to ensure safe operations of electric utility equipment and greater investment in wildfire mitigation efforts.[2] Specifically, the state has approved legislation that strengthens governmental and regulatory oversight of wildfire prevention implementation activities, utility wildfire mitigation plans, and proper dispersal of state funds to wildfire victims. In an effort to minimize future devastating occurrences through risk-driven wildfire prevention, electric utilities, including cooperatives, were mandated, by SB 901 (Senator Bill Dodd, 2018), to prepare and annually adopt a wildfire mitigation plan before January 1, 2020. This effort is foundational to the state's prioritized goal of minimizing the potential of devastating fires in future years.

1.1 SB 901 – Wildfire Mitigation Plans

On September 21, 2018, Governor Jerry Brown signed SB 901 into law. The bill directs electrical utilities to annually prepare wildfire mitigation plans that include several mitigation and response elements in each utility's strategies, protocols, and programs. Each electric utility is to prepare and adopt a comprehensive wildfire mitigation plan before January 1, 2020. The requirements for publicly owned

[2] California Public Utilities Commission, 2019. "Fire Incident Data Reports for Investor-Owned Utilities," https://www.cpuc.ca.gov/fireincidentsdata/.

utilities (POUs) are presented in Public Utilities Code (PUC) Section 8387. Details relating to POU requirements are discussed in Section 2 of this Report.

1.2 City of Lompoc, Lompoc Electric Wildfire Mitigation Plan Preparation

The City of Lompoc Electric Utility Division, Lompoc Electric ("LE") is a publicly owned municipal utility that has served Lompoc's electrical needs since 1923. LE is a division within the City Utility Department and is owned and operated by the City of Lompoc and is governed by the City Manager and the Lompoc City Council. Lompoc Electric owns and operates a system that includes power generation and 12 kV distribution facilities that relies upon Pacific Gas and Electric (PG&E) for transmission. LE serves approximately 15,000 customers within the City of Lompoc City in a well–developed area with a dense urban footprint. The small service area (seven square miles) offers tremendous visibility on Lompoc Electric's infrastructure. The compact territory allows LE to reach nearly every asset within a 10-minute drive from its headquarters. Lompoc Fire Department ("LFD") can respond to a fire in the CPUC-designated High Fire Threat District (HFTD) within six minutes.

LE's service area has a small area designated as Tier 2 but does not have any areas designated as a Tier 3 HFTD. Of Lompoc Electric's 15,000 customers, less than 1% are in the HFTD. No critical facilities are located in this area.

LE evaluated its wildfire risk and determined that the level of risk for wildfires from its overhead lines and equipment is limited. This determination was based on several factors which include, but are not limited to: 1. A small, dense, and well-developed urban footprint, 2. No known history of utility-caused wildfires, 3. Lack of wildfire fuels within the HFTD, 4. Small number of electrical outages within Tier 2 (2 non-equipment outages in 4 years), and 5. A mild climate with an average temperature of 72 degrees F during the wildfire season, with very limited red flag warning events.

1.2.1 Independent Evaluation Services

PUC Section 8387(c) directs POUs to procure services for an independent evaluation (IE) of the comprehensiveness of their wildfire mitigation plans. In 2020, upon commencement of the California Wildfire Safety Advisory Board, guidelines and further details related to the scope and timelines of future IEs will be discussed and reviewed. In its present form, the provisions of PUC Section 8387 state that the independent evaluator shall be experienced in "assessing the safe operation of electrical infrastructure" and will perform an assessment to determine the comprehensiveness of wildfire mitigation plans.

LE sought IE services to assess the comprehensiveness of its WMP pursuant to PUC Section 8387(c) prior to presenting the final updated WMP to its City Council and contracted Guidehouse Consulting, Inc., n/k/a Guidehouse Inc. (Guidehouse) in July of 2020 to undertake an assessment of its Plan based on Guidehouse's prior experience with assessing the safe operation of electrical infrastructure, including grid-hardening and wildfire mitigation plans, with an emphasis on electrical equipment, public, and personnel safety.

Emergent practices will materialize as evolving legislative action and technology advances continue to shape wildfire mitigation and safety efforts. Understanding this, Guidehouse performed a comparison of the wildfire mitigation investments undertaken by other utilities throughout California as well as relied on the team's experience in working directly with utilities to develop their wildfire mitigation plans and data collection practices along with prior experience related to gird hardening and electric safety assessments. This Report presents the results of Guidehouse's IE of the WMP. The following section describes the methodology in executing this evaluation.

Guidehouse Identification of Qualifications

Guidehouse provides IE services throughout the United States. Guidehouse's grid-related IE projects include storm hardening, wildfire mitigation, resiliency assessments, advanced technology suitability, among others. Our approach includes an evaluation of data considered, suitability of tracking metrics – both frequency and trends analysis - and an evaluation of key performance indicators. Guidehouse assesses the efficacy of tools for creating sufficient awareness and for effectiveness of understanding overall wildfire mitigation plan's intended and actual impacts.

Guidehouse continues to track proceedings, pending legislation, and other developments surrounding utility wildfire risk. Our team remains active with wildfire mitigation plan engagements across jurisdictions and risk profiles. As part of maintaining high acumen of prudent mitigation strategies, Guidehouse participates in forums focused on innovative wildfire mitigation strategies—further expanding our industry knowledge. Guidehouse provides thought leadership and advisory wildfire mitigation plan services related to wildfire mitigation plans and other resiliency innovative technologies to the California Energy Commission and has supported their system hardening and fire prevention efforts since 2008. Additionally, Guidehouse's reach into grid resiliency and disaster-related hardening extends across the United States including island grids, such as Puerto Rico, recovering from recent, weather-related catastrophes.

2. EVALUATION SCOPE AND APPROACH

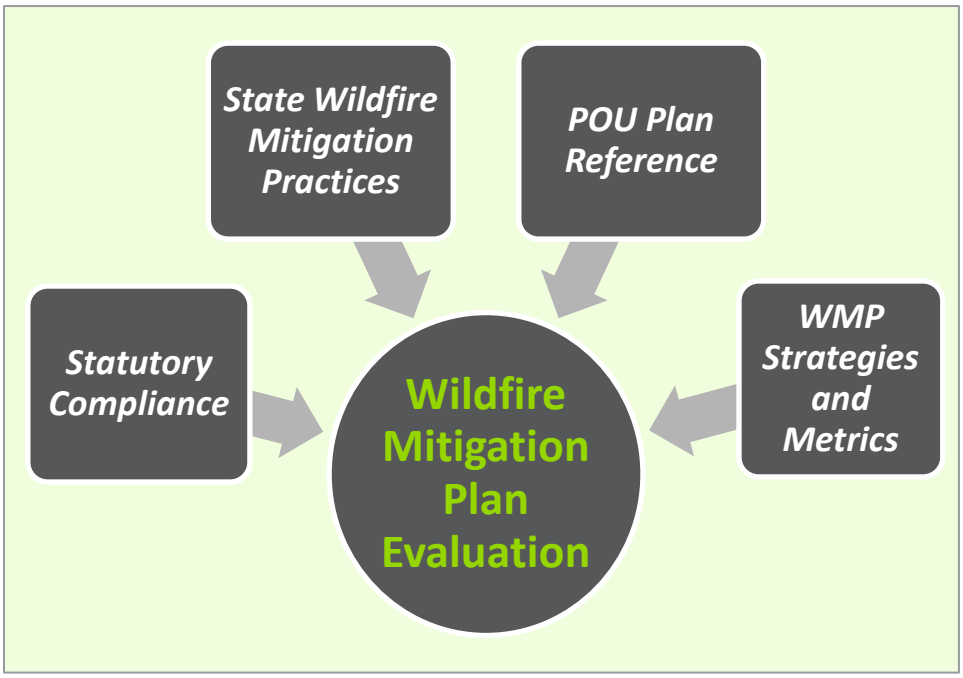
Guidehouse completed this evaluation based on a comparison of the specific criteria in PUC Section 8387(b)(2) to the specific wildfire-related plans outlined in LE's WMP. This evaluation is based upon our knowledge of industry practices, our experience developing and reviewing wildfire mitigation plans and other grid hardening activities, and our understanding of wildfire legislative and regulatory.

The state's priority towards abating future catastrophic wildfire events is demonstrated through aggressive measures, directing utilities to enhance their protocols for fire prevention, public communications, and response. That collection of information is presented in a comprehensive wildfire mitigation plan. Guidehouse has tracked docketed proceedings and maintains a presence in state activities and workshops surrounding wildfire prevention. Understanding that LE is not subject to CPUC regulations, the insight gained from this related experience is leveraged in assessing LE's Plan relative to its risk profile and industry position.

2.1 Evaluation Parameters

Figure 2 represents the attributes comprising the methodology and approach of the evaluation.

Figure 2: Contributing Factors to Evaluate the Plan



As mentioned above, the requirement for electric utilities and corporations to develop wildfire mitigation plans emerged from the directives of SB 901 and associated statutory modifications. See Table 1 for the complete statutory compliance list for POUs.

Table 1: POU Requirements for the WMP

PUC Section 8387 *(as amended on July 12, 2019)*
(a) Each local publicly owned electric utility and electrical cooperative shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment.
(b) (1) The local publicly owned electric utility or electrical cooperative shall, before January 1, 2020, prepare a wildfire mitigation plan. After January 1, 2020, a local publicly owned electric utility or electrical cooperative shall prepare a wildfire mitigation plan annually and shall submit the plan to the California Wildfire Safety Advisory Board on or before July 1 of that calendar year. Each local publicly owned electric utility and electrical cooperative shall update its plan annually and submit the update to the California Wildfire Safety Advisory Board by July 1 of each year. At least once every three years, the submission shall be a comprehensive revision of the plan.
(2) The wildfire mitigation plan shall consider as necessary, at minimum, all of the following:
(A) An accounting of the responsibilities of persons responsible for executing the plan.
(B) The objectives of the wildfire mitigation plan.
(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.
(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.
(E) A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.
(F) Protocols for disabling reclosers and deenergizing 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 on health and communication infrastructure.
(G) Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. The procedures shall consider the need to notify, as a priority, critical first responders, health care facilities, and operators of telecommunications infrastructure.
(H) Plans for vegetation management.
(I) Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.
(J) A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service territory. The list shall include, but not be limited to, both of the following:
(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.
(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.
(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.
(L) A methodology for identifying and presenting enterprise wide safety risk and wildfire-related risk.

(M) A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.
(N) A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following:
(i) Monitor and audit the implementation of the wildfire mitigation plan.
(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation and correct those deficiencies.
(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.
(3) The local publicly owned electric utility or electrical cooperative shall, on or before January 1, 2020, and not less than annually thereafter, present its wildfire mitigation plan in an appropriately noticed public meeting. The local publicly owned electric utility or electrical cooperative shall accept comments on its wildfire mitigation plan from the public, other local and state agencies, and interested parties, and shall verify that the wildfire mitigation plan complies with all applicable rules, regulations, and standards, as appropriate.
(c) The local publicly owned electric utility or electrical cooperative shall contract with a qualified independent evaluator with experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of its wildfire mitigation plan. The independent evaluator shall issue a report that shall be made available on the internet website of the local publicly owned electric utility or electrical cooperative and shall present the report at a public meeting of the local publicly owned electric utility's or electrical cooperative's governing board.

2.2 Evaluation Approach

To perform an assessment of the comprehensiveness of the Plan, Guidehouse used the following approach.

2.2.1 Statutory Compliance

Guidehouse sought to determine compliance with the provisional requirements laid out in SB 901 as codified in PUC Section 8387. The Plan's alignment with the statutory requirement is presented in Appendix A. Mitigation measures are not required to exceed the statutory requirements.

2.2.2 Industry Wildfire Mitigation Practices Comparison

Accepted practices for wildfire mitigation have been discussed and presented at numerous events. Additionally, wildfire mitigation plans approved by the CPUC have garnered significant insight from the industry at large. As a secondary review, Guidehouse utilized its understanding of effective wildfire mitigation plans and strategies drawn from comparisons of existing wildfire mitigation plans and industry practices. This evaluation, detailed in Section 4 "Industry Practices Comparison" of this Report, is separate from the PUC Section 8387(c) review and is summarized according to business practice categories described in Figure 3: Mitigation Strategy Overview.

Figure 3: Mitigation Strategy Overview

Design & Construction: System, equipment, and structure design and technical upgrades designed to improve system hardening to prevent contact between infrastructure and fuel sources, such as vegetation.

Inspection & Maintenance: Assessment and diagnostic activities as well as associated corrective actions aimed to ensure all infrastructure is in working condition and vegetation adheres to defined minimum distance specifications.

Operational Practices: Proactive, day-to-day actions taken to mitigate wildfire risks aimed to ensure the POU is prepared in high-risk situations, such as dry, windy environmental conditions.

Situational & Conditional Awareness: Methods to improve system visualization and awareness of environmental conditions aimed to provide tools to improve the other components of the plan.

Response & Recovery: Procedures to react to de-energization, wildfire, or other related emergency conditions, aimed to formalize protocols for these situations, so the POU can provide an adequate response and recovery.

Expertise in these critical elements facilitated Guidehouse's review of the comprehensiveness of LE's WMP. While not all of these strategies need to be present in or applicable to in any POU's wildfire mitigation plan, due to that POU's size, location, and system or operational characteristics, Guidehouse's understanding of collected utility strategies demonstrated throughout the state are summarized below:

- ***Inspection and maintenance of distribution transmission and substation assets*** including conducting system patrols and ground inspections, using technological inspection tools, managing predictive and electrical preventative maintenance, and conducting vegetation inspections and management, vulnerability detection such as Light Detection and Ranging (LiDAR) inspection; and geospatial and topography identification, geographic information system (GIS) mapping data. A key component is identifying collected data elements through each program and understand how that data is used and shared to improve utility practices.
- ***Vegetation management*** that includes routine preventative vegetation maintenance; corrective vegetation management and off-cycle tree work; emergency vegetation clearance, prioritized for portions of the service territory that lie in high hazard zones, quality control processes; and resource protection plan, including animal and avian mitigation programs.
- ***System hardening*** that includes pole replacement, non-expulsion equipment, advanced fuses, tree attachment removal, less flammable transformer oil, covered wire and wire wrap, and undergrounding where cost beneficial.
- ***Operational practices*** including communications and mustering plans under varying degrees of wildfire risk. Plans to deactivate automatic reclosers, de-energization of "at risk" area powerlines based on type of facility (overhead bare conductions, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain locations vulnerable to wildfire risk.
- ***Situational awareness*** including obtaining information from devices and sensors on actual system, weather and other wildfire conductivity conditions, two-way communication with agencies and key personnel. Programs such as online feeds and websites such as the National Fire Danger Rating System. Situational awareness should help achieve a shared understanding of actual conditions and serve to improve collaborative planning and decision making.
- ***De-Energization actions*** triggered and prioritized by forecasted extreme fire weather conditions; imminent extreme fire weather conditions; validated extreme fire weather conditions; and plans for re-energization when weather subsides to safe levels. Manual or automatic capabilities exist for implementation.

- ***Advanced Technologies*** including Distribution Fault Anticipation technology, tree growth regulators, pulse control fault interrupters, oblique and hyper-spectral imagery; advanced transformer fluids; advanced LiDAR, and advanced SCADA, to reduce electrical ignition while also helping to mitigate power outages and equipment damage.
- ***Emergency Preparedness, Outreach and Response communications*** before, during, and after emergencies including but not limited to engaging with key stakeholders that include critical facilities and served customers; local governments, critical agencies such as California Department of Forestry and Fire Protection (CAL FIRE), local law enforcement agencies and other first responders, hospitals, local emergency planning committees, other utility providers, California Independent System Operator, and the utility's respective Board. Coordination agreements such as Mutual Assistance should be leveraged. Community outreach plan should inform and engage first responders, local leaders, land managers, business owners and others.
- ***Customer support programs*** including financial assistance and support for low-income customers; billing adjustments; deposit waivers; extended payment plans; suspension of disconnection and non-payment fees; repair processing and timing; access to utility representatives; and access to outage reporting and emergency communications. Consideration of languages in addition to English. Identification of priority customers, such as first responders and local agencies, health care providers, water and telecommunication facilities, groups that assist children, elderly, mobility impaired, and other vulnerable populations.

2.2.3 Value Determination of Plan Metrics

Metrics for tracking the wildfire mitigation plan's progress intend to allow the utility to refresh information as trends become clearer. Based upon the discussion included in the CPUC's Phase 2 of the SB 901 proceeding docket, interests in metric development and underlying data collection are beginning to take shape. While these determinations do not directly influence the public power sector, insight has been leveraged to employ and evaluate effective metrics.[3]

[3] CPUC Order Instituting Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to SB 901 (2018) (Rulemaking 18-10-007) https://apps.cpuc.ca.gov/apex/f?p=401:56:0::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1810007.

3. LOMPOC ELECTRIC WMP PLAN ELEMENTS

Guidehouse reviewed the Plan elements to determine whether the activities supported the intention to deploy an effective wildfire mitigation plan. This determination incorporated individual elements as well as underlying data sources that further described data collection methodologies and implementation procedures to ensure measures are carried out and also tracked. This understanding also informs internal reviews and subsequent updates for future Plan iterations.

Guidehouse found that LE's WMP meets the statutory requirements of comprehensiveness per PUC Section 8387. In this section, we review the WMP's elements and their purpose relative to the development and successful execution of the WMP. A table comparing each subsection of PUC Section 8387 to the significant sections of the WMP can be found in Appendix A.

3.1 Review of Statutory Elements

3.1.1 Objectives and Overview of Preventative Strategies and Programs

PUC Section 8387
(B) The objectives of the wildfire mitigation plan.
(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.

3.1.1.1 Objectives

LE identifies four primary objectives:

1. The primary goal of this Wildfire Mitigation Plan is to minimize the probability that LE's distribution system may be the origin or contributing source for the ignition of a fire as well as to protect the system from wildfire damage.
2. Improve the resiliency of the electric grid.
3. Adopt and promote wildfire prevention strategies.
4. Identify any unnecessary or ineffective actions by measuring the effectiveness of specific wildfire mitigation strategies.

In support of these objectives, Lompoc Electric has taken several steps to harden their system and improve their operations and is in the process of evaluating additional prudent and cost-effective improvements to its physical assets, operations, and training to help meet this objective. Lompoc Electric will implement those changes consistent with the Plan as staffing and budget allows.

3.1.1.2 Preventive Strategies

Section 5 of the Plan lists LE's eight strategies for preventing wildfire. Specifically, LE conducts or plans to conduct the following strategies:

1. Vegetation Management – Lompoc Electric will continue to incorporate the industry standard vegetation management practices such as Public Resources Code section 4292 and GO 95 Rule 35.

2. Enhanced Inspections – Lompoc Electric currently patrols its system regularly and plans to increase inspections. Lompoc Electric's current inspection activities include annual visual inspections, intrusive inspection of wood poles, and GIS data collection of inspection activities.
3. Situational Awareness - Lompoc Electric has an outage management system that has the ability to track customers affected by circuit outages. Other efforts include collaboration with Lompoc Fire Department and Lompoc Police Department.
4. Weather Monitoring - Lompoc Electric monitors current and forecasted weather data from information provided by LFD.
5. Operational Practices – Lompoc is employing or will employ leading operational practices include performing only essential work in the HFTD during red flag warnings, additional patrols of higher wildfire threat areas, and LE participation in City EOC drills and training.
6. System Hardening - LE facilities are designed, constructed, and maintained to meet or exceed the relevant Federal, State, or industry standards. LE treats CPUC General Order (GO) 95 as a key industry standard for design and construction standards for overhead electrical facilities. Specific wildfire hardening actions include replacement of all high voltage mechanical electrical connections with compression connections, installation of non-expulsion type current limiting fuses, and installation of insulated wildlife protective guards on all exposed high voltage wires and apparatus on utility poles.
7. Public Safety & Notification – Actions have been determined for LE communication with the community during high fire threat periods and disasters.
8. Reclosing and Deenergization – LE is not adopting specific protocols for de-energizing any portions of its electric distribution system. If necessary, LE can open cut-outs or use switches to isolate areas that are in the HFTD to limit power outage to specific areas.

3.1.2 Risks, Risk Drivers, and Risk Assessment

PUC Section 8387
(J) A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service territory. The list shall include, but not be limited to, both of the following:
(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.
(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.
(L) A methodology for identifying and presenting enterprise-wide safety risk and wildfire-related risk.

3.1.2.1 Identification of Risks and Risk Drivers

Section 4 of the LE WMP identifies risks and risk drivers throughout LE's service territory. Through a review of the level of risk from risk drivers, LE determined that the level of risk for wildfires from its overhead lines and equipment is limited.

LE identifies the following as risks and risk drivers associated with design, construction, operation, and maintenance of its equipment and facilities:

1. CPUC-designated Tier 2 HFTD areas which comprises less than 2% of the LE service territory,
2. The small size and compact footprint of the City,
3. The lack of previously LE-caused wildfires, and

4. Minimal outages in the HFTD over the past four years.

3.1.2.2 Methodology for identifying and presenting enterprise-wide safety risk and wildfire-related risk

The 2017 City of Lompoc Hazard Mitigation Plan contains details regarding the wildfire risk evaluation for the LE service area. LE may want to explicitly include the methodology utilized that explains the process of how LE assesses wildfire and safety risks as part of future analyses.

PUC Section 8387
(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.

A small portion of LE's overhead 12kv electrical lines and equipment is located in, and adjacent to, CPUC designated Tier 2 HFTD. The area is considered an "Elevated" risk for wildfire threat. None of LE's service area is located in a Tier 3 "Extreme" risk area. LE has a small service area with a dense urban footprint, (approximately 7 square miles of land), flat terrain and less than 2% of infrastructure in a Tier 2 HFTD. Of Lompoc Electric's 15,000 customers, less than 1% are located in the HFTD.

LE did not identify any geographic area in its service territory that is a higher wildfire threat than is identified in a commission fire threat map. Accordingly, LE did not identify any area where the commission should expand a high fire-threat district based on new information or changes to the environment.

3.1.3 Wildfire Prevention Strategies

PUC Section 8387
(F) Protocols for disabling reclosers and deenergizing 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 on health and communication infrastructure.
(H) Plans for vegetation management.
(I) Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.

3.1.3.1 Disabling Reclosers

Disabling reclosing refers to the ability to turn off the functionality of substation reclosing circuit breakers and line reclosers to attempt to isolate fault conditions and re-energize (turn back on) areas of the electric grid. Traditionally, electrical circuits were designed to automatically open and close to detect and isolate faults. LE has reclosing capabilities on all substation circuit breakers in the electrical system. In the Tier 2 HFTD, reclosing the circuit could cause a spark and potentially ignite nearby vegetation if fault conditions are still present.

LE states that it will disable automatic reclosing during fire season on the four substation breakers feeding Tier 2. LE has no line reclosers on distribution circuits feeding Tier 2.

3.1.3.2 De-Energization Protocols

Section 5H discusses LE's approach to pre-emptive de-energization commonly known as Public Safety Power Shutoffs (PSPS). Due to the stated minimal risk of utility caused wildfires, LE is not adopting specific protocols for de-energizing any portions of its electric distribution system. LE stated that a protocol exists for a PG&E PSPS, that would impact residences within the HFTD including the Lompoc landfill. LE stated that a list of customers impacted has been created.

LE has developed a PSPS customer notification plan. This plan covers both proactive fire prevention and emergency response communications actions.

3.1.3.3 Vegetation Management

LE utilizes PRC sec. 4292 and GO 95 Rule 35 to guide its vegetation management program in the HFTD. LE works with Urban Forestry to ensure clearances are maintained around overhead lines and substations.

LE has also enhanced their vegetation management program beyond traditional activities:

- No vertical coverage allowed above Lompoc Electric distribution lines;
- Provide vegetation control in a 30-foot perimeter around substations;
- For public land and greenbelts, provide easement clear from ground to sky adjacent to LE facilities;
- Work with adjacent customers to get approval for wider clearance on their land. This could include removing tall, diseased, leaning trees that appear to be at risk of falling into power lines.
- Perform additional vegetation removal for fuels reduction in easements on an annual rotation to ensure CPUC recommended clearances are maintained based on the fire hazard zone where each distribution line is located.

3.1.3.4 Infrastructure Inspections

LE currently patrols its system annually and plans to increase inspections in the HFTD to twice per year. LE's current inspection activities include annual visual inspections, intrusive inspection of wood poles, and GIS data collection. LE will incorporate industry standard inspection guidelines such as CPUC GO 165 and CPUC GO 95, Rule 18 inspection guidelines. LE works to ensure that all inspections are performed within the HFTD before the beginning of the historic fire season, (typically September 1). Additionally, the City monitors drought conditions and other relevant factors throughout the year to determine if inspections should be completed on a shorter timeframe.

3.1.4 Response & Restoration

PUC Section 8387
(G) Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. The procedures shall consider the need to notify, as a priority, critical first responders, health care facilities, and operators of telecommunications infrastructure.
(M) A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.

3.1.4.1 Event Communication

Section 6 of the Plan describes LE's plan for ongoing and emergency community outreach. Methods of communication will include website updates, social media posts, and public service announcements on City television and radio stations, as available. During an emergency, the City Emergency Operations Center (EOC) manages both internal and external communication throughout the incident from that initial notification to termination of the incident. Use of established notification and communication plans will allow LE to coordinate with applicable emergency service personnel (LPD, LFD, Santa Barbara County OES, etc.) along with maintaining open lines of communication with customers, media and City staff. Additionally, the 2016 City of Lompoc Comprehensive Emergency Management Plan further the public communications responsibilities of the Public Information Officer for formulating and releasing information about the emergency to the news media and the general public

3.1.4.2 Restoration

In the event of a wildfire or other emergency event, LE staff will coordinate activities to restore service. LE will restore power, following an event, in cooperation with Lompoc Fire Department, Lompoc Police Department, and City Public Works Department and in coordination with Santa Barbara County or another named Incident Commander. As a member of the California Utility Emergency Association, LE may also call upon mutual aid for assistance in restoration efforts if necessary.

3.1.5 Plan Execution, Monitoring, & Metrics

PUC Section 8387
(A) An accounting of the responsibilities of persons responsible for executing the plan.
(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.
(E) A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.
(N) A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following:
(i) Monitor and audit the implementation of the wildfire mitigation plan.
(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation and correct those deficiencies.

(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.

3.1.5.1 Responsibilities of Persons Responsible for Executing the Plan

Section 3B assigns the responsibility and accountability for execution of the WMP at LE. Specifically, the Electric Utility Division Manager is ultimately responsible for the Plan. The Electric Regulatory Compliance Coordinator manages the execution of performance monitoring, including providing guidance to staff and leading the development of reports. Also contained within Section 3B is a definition of proposed staff assignments for Lead Personnel and Key Technical Personnel for the key WMP strategies.

LE has defined to responsibilities of the persons responsible for WMP plan execution in accordance with PUC 8387(b)(2)(A).

3.1.5.2 Metrics

WMP Plan Section 8B identifies the two metrics LE will track to measure the performance of the Plan: (1) number of fire ignitions; and (2) wires down. Initially, LE anticipates that there will be relatively limited data gathered through these metrics. However, as the data collection history becomes more robust, LE will be able to identify areas of its operations and service territory that are disproportionately impacted. LE will then evaluate potential improvements to the Plan.

Table 2: LE Proposed Metrics

Specific metric	Indicator	Measure of effectiveness	Criteria
Number of Fire Ignitions	Count of events	Reduced number of events over time	• Lompoc Electric facility associated with the fire; • The fire was self-propagating and of a material other than electrical and/or communication facilities; • The resulting fire traveled greater than one linear meter from the ignition point; and • Lompoc Electric has knowledge that the fire occurred.
Wire Down	Count of Events	Reduced number of events over time	• Wires down event includes any instance where an electric primary distribution conductor falls to the ground or onto a foreign object • Wires down within and outside the HFTD.

LE has been tracking some performance metrics notably outages for some time, but only limited data has been available from such metric tracking thus far. The above metrics will be tracked beginning this year. Future versions of the WMP will likely include a broader discussion of previous metrics and how those metrics are used to shape and improve measures to reduce the risk of wildfires.

Guidehouse believes the metrics identified and tracked satisfy the basic requirements of PUC 8387(b)(2)(d). In future WMPs, LE is encouraged to evaluate whether additional metrics are needed to assess WMP performance.

Guidehouse notes that the WMP does not discuss how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan - PUC 8387(b)(2)(E). This is common as 2020 is the first year LE is tracking metrics in this manner. In future iterations of the LE plan this should be addressed.

3.1.5.3 Monitoring and Auditing the Plan

The Electric Utility Division Manager is responsible for the implementation of the Plan and to ensure that LE staff follows procedures and protocols. The Electric Regulatory Compliance Coordinator manages the execution of performance monitoring, including providing guidance to staff and leading the development of reports. LE will audit the WMP annually and capture any lessons learned will have the highest priority for improving steps in the Plan and the process for implementation. Lompoc Electric will present the Plan to the City Council on an annual basis.

4. INDUSTRY PRACTICES COMPARISON

In consideration of industry-accepted and demonstrated mitigation measures, Guidehouse provided a comparison against approved California Utility Wildfire Mitigation Plans (WMP) where comparable to the City of Lompoc, Lompoc Electric ("LE.") Three items have been recommended for detailed discussion of the applicability and efficacy of the proposed strategy.

Service Area: Lompoc Electric is a division within the Utility Department of the City of Lompoc. The approximate 7 square miles of service area serves about 15,000 customers within a dense urban footprint with flat terrain. Due to several factors outlined within the WMP, LE asserts that the service area has low utility caused wildfire risks.

Disabling Reclosing Operations

Disabling reclosing refers to the ability to turn off the functionality of substation reclosing circuit breakers and line reclosers to attempt to isolate fault conditions and re-energize (turn back on) areas of the electric grid. Traditionally, electrical circuits were designed to automatically open and close to detect and isolate faults. In many cases, the relays would make two or three attempts to isolate a fault condition. Each potential attempt could cause an electrical spark, which could be a source of ignition. Disabling reclosing significantly reduces the number of potential ignition sources.

The LE approach to disabling reclosing, implementation of high-speed tripping represents the implementation of actions considered best practices at other Utilities.

Non-Expulsive Fuse Devices

Fuses (Fusing) refer to protective devices that defend the distribution system from faulted or damaged lines and equipment. Historically, LE and other utilities in California, and utilities across the country have used conventional fuses to protect powerlines. These conventional fuses, when operated, expel hot particles and gases, which can start fires. In order to mitigate the potential for fire ignitions, non-expulsive fuses can be installed to replace expulsion type fuses. Fuses manufacturers now provide current limiting dropout fuses with a self-contained design that eliminate expulsive showers associated with expulsion fuse operation. These non-expulsive fuses are more suitable for Tier 2, Tier3. Many of these fuses have been granted permanent exemption by the California Department of Forestry and Fire Protection (CAL FIRE) from pole clearance requirements if installed in the field according to manufacturer's specifications.

LE's actions are consistent with the non-expulsive fuse best practices being performed by the other utilities in the state.

Fuels Management

Many types of plant materials can act as wildfire fuel, including grasses, shrubs, trees, dead leaves, and fallen pine needles. Accumulation of these burnable materials increase the chances of catastrophic wildland fire. In the right conditions, excess fuel allows fires to burn hotter, larger, longer, and faster, making them more difficult and dangerous to manage. The intensity and severity of wildfires is often reduced through fuels management activities. Fuels management is an action designed to reduce fire hazards by removing or rearranging fuels. When applied to strips of land, they are designated as a fuel break or fire break. Fuel breaks are strips of land in which vegetation, both dead and alive has been modified, but some trees and shrubs are retained.

LE has an effective fuels management program which includes additional annual vegetation removal for fuels reduction in easements and working with homeowners to remove dead and dying trees and other trees that may fall onto distribution lines.

TABLE 2 INDUSTRY PRACTICE STRATEGY COMPARISON MATRIX

Identified Practice Strategy	Mitigation Rationale	LE Applicability	Plan Elements		Determination
Situational Awareness / Weather Conditions					
Investing or investigating in opportunities to procure weather stations for instantaneous weather condition reporting	Having access to internal mechanisms to track fire conditions (high wind, dry conditions, high heat), will aid in responding to and preventing potential fires by enacting related protocols during fire watch conditions	Especially in Tier 2, Tier 3, weather stations would allow Utility personnel to have access to real-time monitoring of these areas	Lompoc Electric monitors current and forecasted weather data supplied by the Lompoc Fire Department (“LFD”.)		Due to the compact nature of the LE service area, moderate weather, and urban terrain, procurement of weather stations does not apply.
Instantaneous weather conditions web-based portal and GIS data sharing capabilities; weather monitoring	Real-time, weather update tracking allows deepened awareness of the conditions that may lead to a spark or ignition. The weather station servers are able to capture and record several weather and meteorological attributes, allowing forecasting scenarios and learning experiences from high-risk events. The presentation and visualization of this data through GIS monitoring applications will assist future risk models and fire prevention planning	Weather stations should have the ability to capture and interpret the information sent in real-time for operations that warrant mitigation measures.	LE monitors current and forecasted weather data supplied by the Lompoc Fire Department (“LFD”.)		Due to the compact nature of the LE service area, moderate weather, and urban terrain, procurement of instantaneous weather monitoring does not apply at this time
Cameras with night vision mode capability atop of electrical structures	Visual inspections can be enhanced through the use of cameras with high definition and night vision capabilities. This measure improves response times in addressing risk incidents and de-energization	Utilities with areas of limited access with steep terrain within Tier 2, Tier 3 would benefit from night vision camera additional visibility	The LE service area does not contain any HFTD areas with difficult access and steep terrain.		This best practice does not apply to LE

Identified Practice Strategy	Mitigation Rationale	LE Applicability	Plan Elements	Determination	
System Hardening / Design & Construction					
Replacing bare wires with covered conductors	Covered wire is a well-demonstrated prevention method to sparks / ignitions during severe weather conditions. Several utilities are employing pilot programs of covered wire replacement of distribution lines, prioritizing Tier 2, Tier 3 for implementation.	LE has limited applicable overhead distribution line within Tier 2 that would benefit from additional hardening such as covered wire replacement for existing, legacy bare wire.	LE does not have a program for replacement of bare wire with covered conductor within Tier 2.		Given the urban terrain, comprehensive vegetation and fuels management programs, replacement of base wire with covered conductor is not applicable within the small Tier 2 area of the LE service territory.
New or planned electrical lines (distribution and transmission) that are designed to withstand working loads under the stress above design standards to address high wind speeds	As new capital infrastructure plans are developed, it would be prudent to consider resilient design standards that can withstand sustained winds and gusts that occur during Red Flag Warning periods.	Construction of distribution facilities meet or exceed GO 95 standards. LE does not own or construct transmission lines.	LE service area does not experience extended periods of high wind speeds during the wildfire season. As part of pole loading testing LE does conduct wind loading test via software		LE actions are prudent in this identified best practice strategy
Steel or composite poles swapped out for wood poles, at minimum, within HFTAs or fireproofing wooden poles (fire resistant material coating)	When considering pole replacement strategies, when applicable, composite or steel poles can reduce the risk that wood poles present. At minimum, fire retardant material can be coated to temporarily enhance the ability to prevent fire spread or impact the stability of the structure under fire threat.	While pole remediation activities exist, such as additional clearing, coring to test structural integrity, and coating mechanisms, when new poles are considered for high fire severity zones, more resilient designs should be a consideration.	LE does not have a program to replace wood poles with steel poles within Tier 2. Crossarms are replaced as needed. Additionally, LE has a program to install bird guards that will be completed in the summer of 2020.		LE has implemented the appropriate best practices actions for this strategy.

Identified Practice Strategy	Mitigation Rationale	LE Applicability	Plan Elements	Determination	
Pole loading assessment and remediation	Carry out programs that address pole loading issues and inspections that would result in remediation to infrastructure.	General Order 165 is considered a “best practice by many public owned utilities. GO 165 Section III A (5) defines "Intrusive" inspection as one involving movement of soil, taking samples for analysis, and/or using more sophisticated diagnostic tools beyond visual inspections or instrument reading.	LE has an intrusive pole testing program and will continue to evaluate improvements to the process.		Completion of intrusive pole testing within Tier 2 is a recommended best practice.
Expulsion fuse device change out to current-limiting (non-expulsive) fuses	Traditional fuses pose a fire risk due to the ignited material that can be expelled. Best practices for mitigating this risk is to change out these fuses with non-expulsive fuses A protective device coordination study achieves an optimum balance between equipment protection and selective isolation that is consistent with the operating requirements of power systems.	LE Tier 2 would benefit from the replacement of traditional fuses with ones that minimize sparks and arcs. Electrical systems use fuses and circuit breakers to protect electrical equipment. Equipment failures and other anomalies may cause a short circuit. Risks are reduced within Tier 2 when a short circuit impacts only that portion of the system where the failure occurs.	LE has a program to replace expulsive fuses within Tier 2 with an expected completion date prior to the 2020 wildfire season		LE has implemented a best practice strategy by replacing expulsive fuses in Tier 2.
Tree attachment removals	This practice involves the removal of electrical infrastructure fastened to trees for infrastructural support but can be a source of ignition. The removal of these legacy devices may reduce electrical spark risk.	LE has no tree attachments within Tier 2 that require evaluation	LE has no tree attachments within Tier 2 that require evaluation		This is N/A as LE has no tree attachments requiring remediation action.

Vegetation Management					
Routine vegetation inspections in accordance with: Public Resources Code (PRC) 4292 & 4393, FAC 003-4, General Order (GO) 95 Rule 35 and Appendix E, and ANSI A300	State and federal compliance for vegetation management and inspection, as well as California Public Utilities Commission GO 95, which is accepted as industry standard amongst all utilities. (Community and investor owned).	PRC sections 4292 and 4293; FAC 004-4; GO 95 is required by the CPUC for investor owned utilities.	LE uses industry standard vegetation management practices such as PRC 4292 and GO 95 Rule 35. Additional actions include, no vertical coverage allowed above LE distribution lines, easement clearing from ground to sky for public land and greenbelts, adjacent to LE facilities, and working with customers for additional clearance on private property.		LE has implemented the appropriate best practices actions for this strategy.
LiDAR Technology for vegetation management inspections	Where foot patrols or normal helicopter patrols are insufficient to evaluate the right-of-way (ROW) clearance, utilities use LiDAR technology to identify trees along the ROW border that can potentially contact with lines during high wind events.	LiDAR is demonstrated as an effective tool for transmission level inspection of dense vegetation within the corridor and adjacent to the easement area.	LE does not own or operate transmission facilities		This best practice strategy does not apply to LE
Hazardous tree/vegetation identification and removal protocols and programs	Recording and tagging trees that pose risks to adjacent electrical equipment or are dead/dying are considered prudent efforts for vegetation management practices	Within the Tier 2,3 high fire risk area, danger trees could pose a greater potential to catch on fire or contribute to fire spread. Addressing, though identification and surveying, as well as implementing remediation activities will result in further wildfire risk reduction	LE vegetation management program includes removal of dead and dying trees. LE also works with customers to gain approval for removal of removing tall, diseased, leaning trees that appear to be at risk of falling into power lines.		LE program for removal of hazardous trees constitutes a best practice.

Fuels Management	Fuels management is an action designed to reduce fire hazards by removing or rearranging fuels. When applied to strips of land, they are designated as a fuel break or fire break. Fuel breaks are strips of land in which vegetation, both dead and alive has been modified, but some trees and shrubs are retained.	Fuels management is an effective practice to reduce fire intensity and the probability of wildfire ignitions.	LE performs additional vegetation removal for fuels reduction in easements on an annual rotation to ensure CPUC recommended clearances are maintained based on the fire hazard zone where each distribution line is located. LE also works with homeowners to remove dead and dying trees and other trees that would fall onto distribution lines.		LE has implemented effective fuels management practices
Off-Cycle / Call-in vegetation removal or corrective work, especially during the fire season	Off-cycle practices of vegetation inspection and management	Within LE's service territory Tier 2 fire threat areas, impact trees could pose a greater potential to catch on fire or contribute to fire spread. Addressing, though identification and surveying, as well as implementing remediation activities will result in further wildfire risk reduction	LE inspects facilities in the Tier 1 area once per year and the HFTD twice per year. This is part of a three-tier strategy to rectify issues using Urban Forestry in-house and contractors. LE generates a list of known issues and provides to Urban Forestry for completion.		Lompoc has a program that performs vegetation removal and corrective work during the wildfire season.

Emergency Response & Recovery					
Notify critical facilities and public safety partners, which may include first responders, incident origin law enforcement, acute health care facilities, essential service providers, related governing local and state agencies, adjacent jurisdictions, vulnerable populations, and the Independent System Operator (ISO) (for transmission level de-energization).	Following a sequence of events in contacting public safety partners and impacted community facilities will enable quicker response in reacting to an emergency event (such as a wildfire or de-energization). Utilities should describe their processes to notify critical facilities as it applies to their service territory and impacted communities as well as grid operators.	Notification practices targeting key stakeholders are crucial during emergency events such as storms and wildfires.	No critical facilities are located within the Tier 2 HFTD except for one mobile communications structure. There are, however, a few commercial establishments and a landfill within the Tier 2 zone. The City utilizes several platforms to educate the public about hazards in the community. The City Emergency Operations Center coordinates internal and external communications during emergency incidents.		Established EOC notification and communication plans allow LE to coordinate with applicable emergency service personnel (LPD, LFD, Santa Barbara County OES, etc.) along with maintaining open lines of communication with customers, media and City staff.
Incident Command Team / Emergency Operations frameworks in the event a de-energization event or wildfire incident occurs	Using the State Emergency Management System (SEMS) framework, which is determined on the Federal Emergency Management Agency (FEMA) structure for incident command protocols will ensure prepared and adequately trained staff to respond in effective communication manners as well as respond to risk events in a sequence of effective procedures	Establishment of Emergency Action Plans between the Electric Department, The City Emergency Operations Center and other City departments assures effective identification, assignment and training for emergency management roles	The 2017 City of Lompoc Hazard Mitigation Plan contains details related to emergency response to wildfires		Specific emergency management plans related to wildfires is a best practice.

Coordination with stakeholder agencies/entities with routine meetings to discuss emergency preparedness needs and areas of improvement, etc.	Communicating with vested stakeholders during wildfire mitigation activities, PSPS events, and general strategy development will help drive efforts to better align with the risk profile of the utility's service and asset territory. These efforts should occur throughout the year and wildfire mitigation plan planning process	Notification practices targeting key stakeholders are crucial during emergency events such as storms and wildfires.	Only 2 percent of Lompoc Electric customers are located in the Tier 2 area. Medical Discount customers, City facilities and Safety agencies, and the owner of the mobile communications structure, will be contacted by phone. Information about an outage will be provided		Given the nature of wildfires risks within the LE service area, adequate communication plans are in place.
Internal Operations and Inspection Practices					
Disabling reclosers through blocking reclosing operations (distribution level) in Tier 2 during the fire season and/or during Red Flag Warnings issued by the National Weather Service (or as fire risk potential designates)	Disabling reclosing reduces the number of potential ignition events during a fault condition	Reclosing operations should be defined within the Plan as per statute. Operational best practices align with having settings that align with fire potential weather conditions to prevent potential ignition.	LE has no line reclosers within Tier 2. Before the 2020 wildfire season, LE will deploy low current, high speed tripping and block reclosing on the four distribution circuits feeding Tier 2.		LE has plans to implement best practices system protection schemes for the Tier 2 areas.
Ground patrol as well as aerial inspection practices	Routine ground patrols are implicit practices in equipment and vegetation inspection protocols. Increasing the frequency, especially in Tier 2 , represents an effective preventative measure and ensures the integrity of electrical equipment. Aerial inspections, by way of helicopters, will lead to greater coverage of the service territory and areas adjacent to required clearances	Ground patrols are a required strategy in ensuring safe and reliable delivery of electricity. When access concerns arise, aerial inspections provide better coverage in surveying and inspecting electrical equipment throughout the utility service territory	Due to the compact and urban terrain of the LE service area, aerial inspection patrols are not applicable.		This best practice strategy does not apply to LE

Wildfire Infrastructure Protection Teams	An internal team to help coordinate efforts to ensure the Plan is being followed as well as coordinating efforts to enhance the Plan's strategies and quality check that activities are being performed and tracked aligning with the Plan	An internal team to prepare and protect physical aspects of the electric system as well as ensure effective mitigation measures are carried out would be a prudent activity to pursue	The current level of wildfire risk for LE do not indicate the need for internal LE wildfire infrastructure protection teams.		LE and LFD work cooperatively to address fires and emergencies within the City of Lompoc
Infrared corona scanning and high definition imagery technology for inspection practices along with visual inspections	Infrared and ultraviolet (Corona) light cameras are typically mounted to helicopters with special attention to splices, conductor connection/attachment points, and insulators for a detailed visual of electrical equipment	Infrared is an accepted practice that enables better awareness of the utility's equipment	LE performs substation infrared inspections. Over the past four years, LE has had two outages within Tier 2. Neither outage was caused by deterioration of mechanical components.		If increasing failure or deterioration of mechanical parts and connections are observed though inspections or outages, overhead line infrared inspections may be warranted.

5. RESULTS & DISCUSSION

Guidehouse concluded this assessment on July 10, 2020. Over the course of reviewing LE's WMP and supporting documentation, Guidehouse captured takeaways and findings that align the Plan with state laws and effective wildfire measure demonstration. LE's Plan appropriately responds to each of the required elements of PUC Section 8387, which is detailed in Appendix A. The following describes the assessment and resulting findings of the Plan's proposed and established mitigation measures as it applies to safe, reliable operation of all electric infrastructure and wildfire prevention and response.

Report Conclusions

After internal review of the latest version of the WMP and associated data collection products, Guidehouse concludes this Report with the following:

1. LE's WMP aligns appropriately with PUC Section 8387 and includes all required elements.[4]

2. LE's Plan is determined to be comprehensive as described throughout this Report.

[4] Following acceptance of this Report, LE will post the Report online for public view. The Report is scheduled for presentation to the Lompoc City Council at a public meeting on July 21, 2020.

APPENDIX A. STATUTORY COMPLIANCE MATRIX

Required Statutory Element	Plan Section Reference(s)	APU Plan Elements *(Summarized)*	Meets Section Elements *(Determination)*
(a) Each local publicly owned electric utility and electrical cooperative shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment.			
(b) (1) The local publicly owned electric utility or electrical cooperative shall, before January 1, 2020, prepare a wildfire mitigation plan. After January 1, 2020, a local publicly owned electric utility or electrical cooperative shall prepare a wildfire mitigation plan annually and shall submit the plan to the California Wildfire Safety Advisory Board on or before July 1 of that calendar year. Each local publicly owned electric utility and electrical cooperative shall update its plan annually and submit the update to the California Wildfire Safety Advisory Board by July 1 of each year. At least once every three years, the submission shall be a comprehensive revision of the plan.			
(2) The wildfire mitigation plan shall consider as necessary, at minimum, all of the following:			
(A) An accounting of the responsibilities of persons responsible for executing the plan.	Section 3	The WMP clearly elaborates on the roles and responsibilities. The Electric Utility Division Manger owns and has overall responsibility for the WMP. Specific assignments are identified for the lead personnel for vegetation management (Urban Forestry not LE), enhanced inspections, operational practices, system hardening, public safety * notification, and reclosing &de-energization. LE also describes its coordination with joint pole infrastructure providers and other city departments including City Fire, Police, and Urban Forestry.	**Yes**

(B) The objectives of the wildfire mitigation plan.	**Sections 2, 1.B.**	Section 2 details the LE WMP objectives. Specifically, LE's objectives are to: 1. Minimize sources of ignition, 2. Increase resiliency of the electric grid, 3. Implement wildfire prevention strategies, and 4. Identifying unnecessary or ineffective actions. LE also sets forth the purpose of the Plan to mitigate the threat of power-line ignited wildfires and to comply with PUC 8387.	**Yes**
(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.	**Section 5**	Lompoc employs or will employ the following preventive strategies to minimize wildfire risk. 1. Vegetation Management 2. Enhanced inspections 3. Situational awareness 4. Weather monitoring 5. Operational practices 6. System hardening 7. Public safety and notification 8. Reclosing and de-energization Each of these strategies are described in detail in the WMP.	**Yes**
(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.	**Section 8.A.**	Section 8.A. describes the metrics including a count of fire ignitions and wires down in the HFTD.	**Yes**
(E) A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.	**N/A**	Guidehouse notes that the WMP does not discuss how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan. This is common as 2020 is the first year LE is tracking metrics in this manner. In future iterations of the LE plan this should be addressed.	**N/A**

(F) Protocols for disabling reclosers and deenergizing 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 on health and communication infrastructure.	Section 5.H.	LE has reclosing capabilities on all substation circuit breakers in the electrical system LE states that it will disable automatic reclosing during fire season on the four substation breakers feeding Tier 2. LE has no line reclosers on distribution circuits feeding Tier 2. Lompoc does not intend to use a preemptive power shutoff as part of its wildfire prevention strategies but reserves the right to cut power to the HFTD if directed by the LFD.	Yes
(G) Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. The procedures shall consider the need to notify, as a priority, critical first responders, health care facilities, and operators of telecommunications infrastructure.	Section 6	The Plan states that none of these sensitive customer groups are located in the Tier 2 HFTD. LE has prepared communication protocols for notifying the limited customers in the Tier 2 if there will be a deenergization event.	Yes
(H) Plans for vegetation management.	Section 5.A.	LE utilizes PRC sec. 4292 and GO 95 Rule 35 to guide its vegetation management program in the HFTD. LE works with Urban Forestry to ensure clearances are maintained around overhead lines and substations.	Yes
(I) Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.	Section 5.B.	LE utilizes GO 165 and GO 95 Rule 18 to guide its inspection program. LE conducts annual visual inspections, intrusive wood pole inspections, and completes its annual inspections prior to the start of fire season. Inspection information is tracked in a GIS program.	Yes
(J) A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service territory. The list shall include, but not be limited to, both of the following:	Sections 4.	Section 4 identifies risks and risk drivers throughout LE's service territory.	Yes

(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.	Section 4.A.	LE identifies the following as risks and risk drivers associated with design, construction, operation, and maintenance of its equipment and facilities: 1. CPUC-designated Tier 2 HFTD areas which comprises less than 2% of the LE service territory, 2. The small size and compact footprint of the City, 3. The lack of previously LE-caused wildfires, and 4. Minimal outages in the HFTD over the past four years.	Yes
(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.	Section 4.B.	LE indicates there are low levels of topographic and climatological risks due to the area's mild climate, calm winds, (rare Red Flag Warnings), and generally flat terrain, with rolling hills. However, LE notes the Tier 2 wildland urban interface areas contain dense areas of flammable chaparral.	Yes
(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.	Section 4.A.1 and 4.2.B	The Plan identifies the geographic area where the CPUC has identified a Tier 2 HFTD. LE did not identify any areas where the HFTD should expand but it will review the identifications annually.	Yes
(L) A methodology for identifying and presenting enterprise wide safety risk and wildfire-related risk.	Section 4.A.	The 2017 City of Lompoc Hazard Mitigation Plan contains details regarding the wildfire risk evaluation for the LE service area. LE utilized the Hazard Plan as a basis for their risk assessment along with analyzing the CPUC High Fire Threat Map, the size and footprint of LE's territory and response time, the lack of a history of wildfires caused by utility equipment, and outage history in the HFTD.	Yes

(M) A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.	**Section 7, 3.E.**	LE's approach to restoration of service is described in depth in section 7 of the Plan. Lompoc will utilize a 5-step program of assessment, planning, mobilization, rebuilding, and restoring to ensure power is returned in a safe and timely manner that prioritizes key customers and infrastructure. Additionally, Section 3.E. describes LE's wildfire response and recovery plans, including the ability to call upon mutual aid through the California Utility Emergency Association. Re-energization will be coordinated with LFD and the City Emergency Operations Center.	**Yes**
(N) A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following:			
(i) Monitor and audit the implementation of the wildfire mitigation plan.	**Sections 3.B., 8.C.**	The Electric Regulatory Compliance Coordinator will manage the execution of performance monitoring, including providing guidance to staff and leading the development of reports.	**Yes**
(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation and correct those deficiencies.	**Section 8.D**	Section 8.D states the "Plan will be internally audited for completeness and effectiveness annually in preparation for presentation to the City Council" and appropriate corrections to the Plan and supporting procedures and processes will be made."	**Yes**
(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.	**Section 8.E.**	The WMP states LE will utilize the identified metrics to monitor and audit the effectiveness of electrical line and equipment inspections.	**Yes**

(3) The local publicly owned electric utility or electrical cooperative shall, on or before January 1, 2020, and not less than annually thereafter, present its wildfire mitigation plan in an appropriately noticed public meeting. The local publicly owned electric utility or electrical cooperative shall accept comments on its wildfire mitigation plan from the public, other local and state agencies, and interested parties, and shall verify that the wildfire mitigation plan complies with all applicable rules, regulations, and standards, as appropriate.	N/A	LE presented the WMP to the Lompoc City Council to an appropriately noticed public meeting on December 17,2019. At that time the WMP was approved.	
(c) The local publicly owned electric utility or electrical cooperative shall contract with a qualified independent evaluator with experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of its wildfire mitigation plan. The independent evaluator shall issue a report that shall be made available on the internet website of the local publicly owned electric utility or electrical cooperative and shall present the report at a public meeting of the local publicly owned electric utility's or electrical cooperative's governing board.	Section 9	Guidehouse provided this independent evaluation in accordance with PUC 8387(c). This report and accompanying presentation will be presented to the Lompoc City Council on July 21, 2020 and is publicly posted on the City of Lompoc, LE public website.	