NORTHERN CALIFORNIA POWER AGENCY WILDFIRE MITIGATION PLAN 2023

VERSION 2.0

CURRENT VERSION DESCRIPTION

Version 2.0 – A comprehensive review of NCPA's 2023 Wildfire Mitigation Plan. NCPA's Commission approved this WMP on May 25, 2023 per Resolution 23-46. This WMP includes the Qualified Independent Evaluators (IE)Comprehensive Review Report describing revisions in Appendix 5. This version also includes tables in the attachment section of this report that outlines changes based on recommendations from the California's Wildfire Safety Advisor Board (WSAB) and best industry practices to meet the conditions within the PUC 8387 (B) requirements.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Northern California Power Agency (NCPA) has prepared the following Wildfire Mitigation Plan (WMP) in accordance with California Public Utilities Commission (CPUC) regulation 8387 (SB 901). NCPA is a Joint Powers Agency, which owns and operates several electrical generation facilities to support its members' generation needs.

The objective of this WMP is to reduce the risk of wildfires that could be ignited or propagated by NCPA electrical equipment or facilities in high fire threat locations. The plan describes the range of activities that NCPA is taking to mitigate the threat of power line-ignited wildfires, including its current programs, policies, and procedures as well as future plans to decrease risk and improve resiliency. The plan has prioritized the prevention of elements that create a wildfire event: 1) fuel, or geographic conditions represented by the California Department of Forestry and Fire Protection (CAL FIRE) and the CPUC risk maps, and 2) ignition, represented by facilities subject to creating a fire. The facility types of highest interest are open wire power lines (transmission and distribution) that are near heavy vegetation or forest.

NCPA has no retail customers. As such, this report focuses exclusively on NCPA electrical facilities with minimal discussion regarding customer communication typical of other utility WMPs.

1. OVERVIEW

1.A. POLICY STATEMENT

The Northern California Power Agency (NCPA), a California Joint Action Agency, has an overarching goal to provide safe, reliable, and economic electric service to its public power members and associate members. To meet this goal, NCPA constructs, maintains, and operates its equipment in a manner that minimizes the risk of wildfire ignition and propagation caused by NCPA-owned and -operated electric utility equipment (generation, generation tie-lines, and distribution).

1.B. PURPOSE OF THE WILDFIRE MITIGATION PLAN

The objective of this Wildfire Mitigation Plan (WMP) is to reduce the risk of wildfires that could be ignited or propagated by NCPA electrical equipment or facilities in high fire threat locations.

NCPA is a Joint Powers Agency, which owns and operates electrical generation facilities. The scope of this plan applies to the Geothermal Facility and the Hydro Facility that are located in two different Geographical areas. These two facilities contain electrical equipment in high fire threat locations. The Geothermal Plant is located around the Geyser territory in Lake County and the Hydro Electric Facility is located in the North Fork Stanislaus River watershed.

The plan describes the range of activities that NCPA is taking to mitigate the threat of power line-ignited wildfires, including its current programs, policies, and procedures as well as future plans to decrease risk and improve resiliency. This plan is subject to direct supervision by the NCPA Commission and is implemented by the NCPA General Manager. This plan complies with the requirements of Public Utilities Code section 8387 (originally SB-901) for publicly owned electric utilities to prepare a wildfire mitigation plan by January 1, 2020, and to review and update it annually thereafter.

Historically, NCPA has continuously improved its practices to minimize wildfire risks. This includes:

- A transmission line vegetation management program that is compliant with North American Electric Reliability Corporation Standard FAC-003 and CAL FIRE regulations
- Compliance with CAL FIRE and California Public Utilities Commission regulations and guidance for overhead distribution and transmission lines
- CAL FIRE emergency response plans
- Power management/dispatch response procedures
- Periodic equipment inspections and safe work practices
- Workforce training

This WMP is in response to the requirements of California Senate Bill 901 (SB-901). It supersedes a prior plan drafted and approved prior to SB-901, specifically pursuant to Public Utilities Code, Division 4.1, Chapter 6 Wildfire Mitigation (effective January 1, 2017).

In November of 2022, NCPA initiated the development of this current WMP (Version 2.0). NCPA hired Dudek to evaluate NCPA's electrical facilities, processes, and documentation based on

the design, configuration, operations, maintenance, and condition of NCPA facilities in relation to their potential to initiate a wildfire event. The comprehensive evaluation included consideration of NCPA system descriptions, record design/construction documents, typical facilities layouts, basic fire protection system features, data sheets, inspection practices and procedures, baseline vegetation conditions, potential climate change effects, vegetation management practices, fire threat and hazard maps, and other documentation.

In 2020, per Section 8 of this WMP, NCPA hired an outside consultant, Dudek, to review, assess the comprehensiveness, and provide recommendations to this plan. Subsequently, NCPA elected to modify its Draft WMP that incorporated Dudek's recommended modifications. The Revised WMP (version 1.1) was provided to Dudek on April 29, 2020. Dudek reviewed the Revised WMP and determined that it appropriately addressed all elements required under CPUC Section 8387(b)(2). In 2020, this WMP was presented at the NCPA commission meeting, a public meeting, and is posted on NCPA's public website domain. A similar process was followed with Dudek and NCPA's Commission in May of 2021 and 2022 for Versions 1.2 and 1.3.

1.B.1. COORDINATION WITH LOCAL AGENCIES

NCPA's local coordination efforts related to wildfire mitigation include regular meetings for its Emergency Action Plan process. For example, the NCPA Hydroelectric facility hosts an annual face-to-face meeting with local emergency management agencies including: the U.S. Forest Service; CAL FIRE; sheriff departments for Calaveras, Tuolumne, and Alpine Counties; California Highway Patrol; California Department of Parks and Recreation (Calaveras Big Trees State Park); and others. In addition, a separate annual meeting is held with the U.S. Forest Service, since many NCPA Hydroelectric facilities are located on U.S. Forest Service lands. Wildfire mitigation is one of the agenda items that is always explicitly discussed.

The NCPA Hydroelectric and Geothermal facilities also coordinate vegetation management activities with CAL FIRE and routinely utilize CAL FIRE (in cooperation with California Department of Corrections Conservation Fire Camp labor) for vegetation management and wildfire mitigation around the facilities. Additionally, NCPA Geothermal facility staff meet annually with Pacific Gas and Electric (PG&E), Calpine (operator of other geothermal facilities at the Geysers), CAL FIRE, the Bureau of Land Management, and Lake County Sanitation District.

Board (WSAB) developed template for review of POU WMPs

Utility Name:	**Northern California Power Agency**
Size:	<1.5 square miles (39 miles x 200 feet ground clearance)
Assets:	Yes - Generation, Yes - Transmission (Only a generator tie line), Yes - Distribution (Only for NCPA Utilities')
Number of Customers:	Zero Customers. Wholesale provider to PGE Electrical Grid.
Customer Classes:	Zero Customers. Wholesale provider to PGE Electrical Grid.

Location Topography:	No - Urban, Yes - Wildland Urban Interface, Yes - Rural/Forest, No - Rural/Desert, No - Rural/Agricultural
Percent Territory in CPUC High Fire Threat Maps:	Yes - Includes Maps, 46% in Tier 2, 26% in Tier 3
CAL Fire Frap Map Fire Threat Zones:	Yes - Includes Maps, 28.5% Extreme, 11% Very High, 10% in High
Existing Grid Hardening Measures	Yes - Describes hardened & non-hardened infrastructure
Utility Fire Threat Risk Level:	No - Hi, No - Low, Yes - Mixed
Impact by another utility's PSPS?	Yes - Impacted by PGE PSPS
Mitigates impact of another utility's PSPS?	No - NCPA is a wholesaler of power feeding into PGE electrical grid.
Expects to initiate its own PSPS?	No - NCPA is a wholesaler of power feeding into PGE electrical grid.
Prevailing wind directions and speeds by season?	No - In Maps, Yes - Includes description in Section 4.A.

1.C. ORGANIZATION OF THE WILDFIRE MITIGATION PLAN

This WMP includes the following elements:

- Objectives of the plan
- Roles and responsibilities for carrying out the plan
- Identification of key wildfire risks and risk drivers
- Description of wildfire prevention, mitigation, and response strategies and programs
- Metrics for evaluating the performance of the plan and identifying areas for improvement
- Review and validation of the plan
- Timelines

2. GOALS

2.A. MINIMIZING SOURCES OF IGNITION

The primary goal of this WMP is to minimize the probability that NCPA's transmission and distribution system may be the origin or contributing source for the ignition of a fire. NCPA's priorities include facility improvement projects (i.e. see section 5A) as well as continued and improved inspection, maintenance, and vegetation management practices. NCPA has evaluated and will continue to evaluate and implement prudent and cost-effective improvements (i.e. see section 5A) to its physical assets, operations, and training that can help to meet this objective.

2.B. RESILIENCY OF THE ELECTRIC GRID

The secondary goal of this WMP is to improve the resiliency of the electric grid. As part of the development of this plan, NCPA has assessed and will continue to assess new industry practices and technologies that will reduce the likelihood of an interruption (frequency) in service and improve the restoration (duration) of service. For example, section 5.A includes a 230kv Insulation improvement project that increased the electrical transmission resiliency for the NCPA Hydro Electric Facility.

2.C. IDENTIFYING UNNECESSARY OR INEFFECTIVE ACTIONS

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

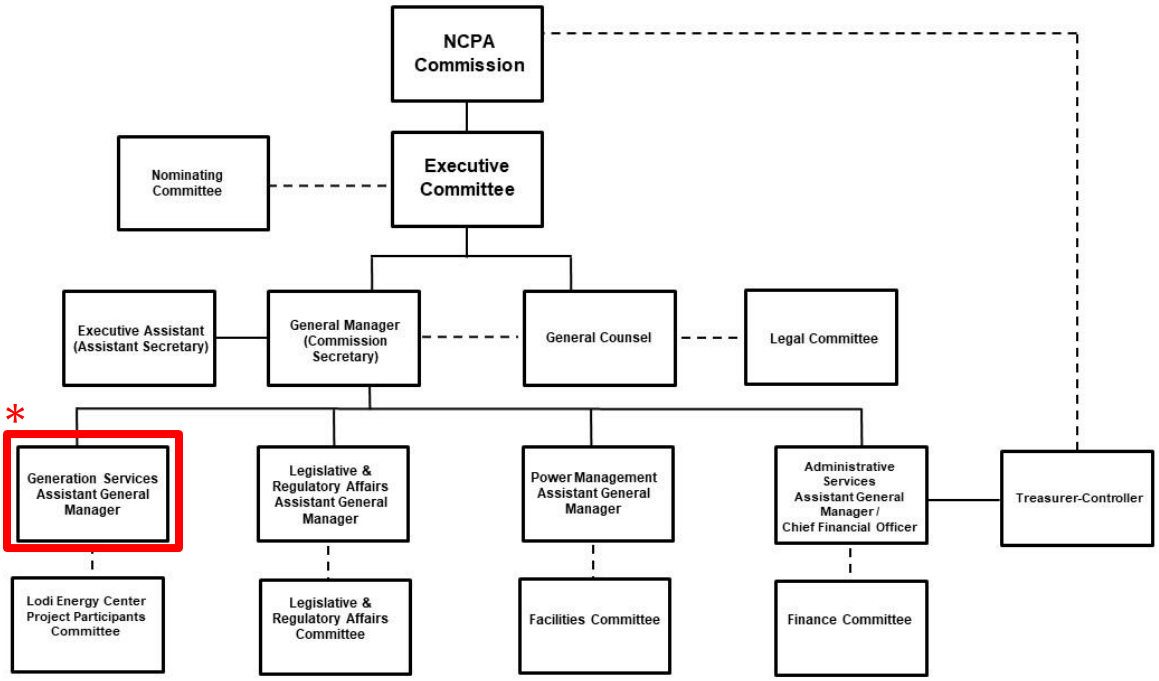
NCPA's current and planned wildfire risk mitigation activities will be formally reviewed annually according to this WMP regarding the effectiveness of ongoing practices, investigation of new technologies, and changing climate and ground conditions to continually prioritize the highest value activities for fire risk mitigation. These actions align with NCPA's Strategic Priorities of "Prepare" and "Value": "*Develop and maintain diverse generation resource portfolio in accordance with or exceeding renewable portfolio standard and capacity obligations" and "Develop and enhance strategies to control costs and minimize risks while optimizing the value of assets*". These Priorities indicate the Agency's commitment to addressing the ongoing shift in service conditions for generation assets brought about by changing climate conditions, as embodied in California's Renewable Portfolio Standard, and to addressing the additional risks to energy deliverability brought about by increasing drought and aging transmission and distribution infrastructure.

3. ROLES AND RESPONSIBILITIES

3.A. UTILITY GOVERNANCE STRUCTURE

NCPA is governed by a Commission that maintains several committees, including an Executive Committee, a Nominating Committee, a Legal Committee, a Legislative & Regulatory Affairs Committee, a Facilities Committee, and a Finance Committee. The Executive Committee includes a Chair, Vice Chair, and seven at-large representatives.

Among its approximately 160 employees, NCPA has an internal management team, including a General Manager; an Assistant General Manager for Legislative & Regulatory Affairs; an Assistant General Manager for Power Management; an Assistant General Manager for Generation Services; an Assistant General Manager for Finance & Administrative Services; a General Counsel; and an Executive Assistant & Assistant Secretary to the Commission.



*The red box above indicates the responsible department of the North Fork Stanislaus Hydroelectric Project (Hydro) and Geyser's Geothermal (Geo) Projects. NCPA Plant managers are responsible for executing the WMP and serve under the Generation Services Assistant General Manager.

3.B. WILDFIRE PREVENTION ORGANIZATIONAL RESPONSIBILITIES

NCPA is governed by a Commission comprised of one representative for each of its public power utility members. The Commission is responsible for the general management of the affairs, property, and business of the Agency. Under the direction of the General Manager, the staff of the Agency is responsible for providing various administrative, operating and planning services for the Agency. This establishes all funding and is applied to all wildfire funding mechanisms in this plan (i.e., 3.B., 3.C., 5.A., 5.F, 5.G, 5.H).

NCPA's organizational responsibilities with respect to wildfire mitigation correspond to its two main facility locations that reside in high fire threat areas: The North Fork Stanislaus Hydroelectric Project (Hydro) and Geyser's Geothermal (Geo) Projects. Hydro and Geothermal plant managers have responsibility for operations at each respective generating facility. The plant supervisors at each location are responsible for the workforce training and execution of all policies and procedures related to fire risks, equipment design, maintenance, inspection, vegetation management, and operations for all activities at their facilities.

Revisions to the NCPA Wildfire Mitigation Plan are presented to the NCPA Facilities Committee for review and comment, before being routed for final approval to the NCPA Commission. The NCPA Wildfire Mitigation Plan is available for public review on the NCPA website (Policy → Reports → Wildfire Mitigation Plan). Archived versions of NCPA's Wildfire Mitigation Plan are also available in this location.

The NCPA Dispatch Center in Roseville, under the direction of the Assistant General Manager for Power Management, has jurisdictional and operational responsibilities for the generator tie lines, including procedures for Operating Instructions and Emergency Assistance (NCPA-PM-108) and Emergency Operating Guidelines for the Collierville-Bellota 230 kV Lines (NCPA-PM-201).

Under the direction of the Assistant General Manager for Generation Services, the plant managers are responsible for implementation and execution of the WMP with respect to their facilities (see notes in Section 3A, Governance Structure Diagram). In coordination with the NCPA Dispatch Center, the plant managers coordinate activities with internal and external entities necessary to operate and react to wildfire activity.

Additionally, all NCPA employees are responsible for:

- Performing good housekeeping practices
- Maintaining their work areas free of potentially flammable materials
- Participating in fire prevention and suppression training as required

3.C. WILDFIRE RESPONSE, COMMUNICATION, AND RECOVERY

The objective of crisis management is to provide direction for rapid performance of hazard assessment, prioritization, notification, and applicable actions. NCPA has evaluated potential hazards in the work environment and surrounding areas and has worked with local authorities to develop emergency response plans for each facility that address mitigation of hazards and

effective response. The goals are to protect personnel, the public, the environment, and the assets of NCPA.

NCPA utilizes a number of resources to communicate emergency or hazardous conditions to personnel (including non-NCPA personnel) at geothermal plants, powerhouses, and associated facilities and locations. These resources include two-way radio communications equipment, cell phones, satellite phones, telephone landlines, email, and the Internet.

The agency maintains separate emergency response plans, due to different geographic locations, for Geothermal and Hydro generation projects. The plans provide guidance and emergency resources for: fire events, unplanned, sudden or non-sudden hazardous materials/waste releases, air emissions exceedances, natural or manmade disasters (earthquakes, floods, bomb threats, or suspected terrorist or sabotage events, etc.), or emergency hazards.

Any accident or incident requiring emergency response and support from external agencies shall be reported to the appropriate NCPA plant supervisor. The type and severity of the event(s) shall determine the appropriate response and course of action.

The NCPA Dispatch Center is the main point of contact for PG&E on any public safety power shutoff (PSPS) notification affecting any of NCPA's or members' generation and member loads. NCPA does not have a defined service territory however the NCPA Dispatch Center's responsibility is to pass along relevant PG&E PSPS notification to affected members based on phone messages or emails received from PG&E through its Everbridge mass notification system. The NCPA Dispatch Center will also follow up on the Everbridge PSPS notifications with information on any planed power shutoff events based on PG&E's PSPS websites or direct PG&E communication where current and real-time information is available.

NCPA provides wholesale power to City's and utilities, typically known as NCPA members, only via the utility grid. Since NCPA does not have retail customers, no customer notification protocols are in place.

3.D. COORDINATION WITH WATER UTILITIES/DEPARTMENT

The power from the NCPA generation facilities is delivered to the California Independent System Operator (CAISO) grid. Unlike a typical public utility, NCPA does not have a defined service territory nor does NCPA deliver or provide power directly to any water utilities. However, the NCPA Hydroelectric Project does transport and deliver water owned by two (2) water utilities through infrastructure (dams and tunnels) operated by NCPA. One of those entities, the Calaveras County Water District (CCWD) owns the hydro facilities that NCPA operates to deliver this water. The Utica Water and Power Authority (UWPA) also receives some of their water through the same facilities. It is important to note that neither curtailment of NCPA generation facilities nor de-energization of the NCPA powerlines has any impact on the abilities of CCWD or UWPA to obtain water. NCPA routinely communicates and coordinates with CCWD and UWPA, and both entities are included on communication flow charts for the relevant emergency plans, such as the Emergency Response Plans.

3.E. COORDINATION WITH COMMUNICATION INFRASTRUCTURE PROVIDERS

NCPA does not provide power directly to any communication infrastructure providers and therefore does not routinely coordinate or communicate with communication infrastructure providers related to wildfire mitigation or power outages.

3.F. MUTUAL AID AGREEMENTS

NCPA members are uniquely and ideally qualified to assist with the emergency replacement of poles and wires that are necessary to return electric distribution and communication facilities to normal operating condition. However, mutual aid agreements have also long been utilized by publicly owned utilities during times of need. These agreements are usually formed and exercised among neighboring utilities as proximity allows for quick response and less travel expenses. Additionally, mutual aid agreements that have a broader geographical reach, allowing for the provision of aid from utilities across the state or nation, can provide better protection from large regional events that may result in neighboring utilities having to respond to the same emergency events. NCPA is a member of the California Utilities Emergency Association, which plays a key role in ensuring communications between utilities during emergencies and maintains a mutual aid agreement for its members. As a member of the American Public Power Association (APPA), NCPA and its members can also authorize APPA mutual aid agreements.

4. WILDFIRE RISKS AND DRIVERS

NCPA electrical infrastructure consists of the following facilities that are in Moderate to Very High CAL FIRE Hazard Severity Zones (2009) and/or Tier 2/3 CPUC Fire Threat Zones (2018). See Appendix 1.

NCPA Project	NCPA Facility	Cal Fire Hazard Severity Zone (2009)			CPUC Fire Threat Zone (2018)	
		Moderate	High	Very High	Tier 2	Tier 3
North Fork Stanislaus Hydroelectric Project (Hydro)	Collierville Powerhouse 11523 Camp 9 Rd., Murphys, CA 38.144944, -120.380022	-	-	X	X	-
	New Spicer Meadows Powerhouse 38.393735, -119.999489	-	-	X	-	-
	McKay's Point Diversion Dam 38°14'3.70"N, 120°17'31.70"W	-	-	X	-	X
	McKay's 17kV Service Line	-	-	600 ft.	-	600 ft.
	Beaver Creek 38°14'02.94" N 120°16'43.50" W	-	-	X	-	X
	Collierville-Bellota 230kV Gen-Tie Line	10 miles	11 miles	15 miles	25 miles	-
Geysers Geothermal (Geo)	Plant 1, Middletown, CA 38.751915, -122.719932	-	-	X	-	X
	Plant 2, Middletown, CA 38.748348, -122.710913	-	-	X	-	X
	230 kV Gen-Tie Line	-	-	2.5 miles	-	2.5 miles
	Effluent Pump System and 21 kV Service Line	-	-	3 miles	-	3 miles
	Steam Field and Delivery (includes 480vac power)	-	-	8 miles	-	8 miles

NCPA is also a 6.13% co-tenant of the Castle Rock Junction-Lakeville 230 kV Transmission Line in the Geysers area. This line is located in a Tier 3 CPUC Fire Threat Zone and is operated and maintained by PG&E; it is included within the scope of the PG&E Wildfire Mitigation Plan.

There are no new wildfire risks associated with design and construction of new assets. NCPA is currently Operating and Maintaining original generating facilities. No new construction is planned in the immediate future.

Note that NCPA does not have "Enterprise-wide" Safety Risks (as addressed under section 4.B of the CMUA template) as the Agency does not possess general responsibility over assets and geography except for locations tied to our specific generation assets, as outlined above.

4.A. RISKS ASSOCIATED WITH TOPOGRAPHIC AND CLIMATOLOGICAL FACTORS

Multiple wildfire risk drivers have been identified from recent wildfires. These include drought conditions, vegetation type and density, weather conditions (high winds and climate change), and local topographic features (terrain). Vegetation and climate conditions are discussed in section 5.

Primary risk drivers are weather and climate. Weather and climate include extended drought periods, changing weather patterns, and high winds. These weather and climate factors affect vegetation conditions, including vegetation health, type and density. Stressed vegetation is prone to disease, insect infestations, and increased mortality rates. Conversely, high levels of snow and rainfall also affect wildfire risk due to the potential for excessive vegetation growth and landslides which could affect target trees or infrastructure.

Physical conditions, such as terrain and high winds, affect fire risks. These factors influence fire movement and direction, and control migration rates. Generally, fires move upslope without strong winds, while high winds (i.e. Diablo winds) rapidly drive fires primarily in the same direction as the wind. Topographic features, such as steep canyons, create localized conditions that affect fire movement and rate of speed.

Several of the risk drivers are interrelated:

- **Extended drought**: Extended drought periods result in multiple stress factors for vegetation: dry trees and brush, higher susceptibility to disease and insects, easier ignition, faster burn rate, etc.
- **Excessive precipitation**: Excessive precipitation can affect vegetation density and susceptibility of trees to toppling in high winds.
- **Vegetation type**: Fire risk is partially dependent upon vegetation type. Some vegetation burns quickly (e.g. dry grass), while other types burn hotter (e.g. hardwood trees such as oak). Each vegetation type presents its own unique challenges for vegetation management and control.
- **Vegetation density**: Vegetation density directly affects wildfire hazards. Dense vegetation generally represents the highest hazard level, while sparse vegetation density is substantially lower risk. Vegetation density is often associated with weather conditions, local micro-climates, precipitation amount and vegetation type.
- **Weather**: Weather conditions include precipitation, humidity, storms, and winds. Each factor affects wildfire risks. Lightning strikes associated with thunderstorms or dry lightning are a natural cause of wildfires.
- **High winds**: High winds drive wildfires. They also down trees (a risk that rises with both drought and excessive rainfall) and sometimes down power lines. In turn, downed power lines are potential ignition sources and the documented cause of some major wildfires in California.
- **Prevailing Winds**: NCPA monitors prevailing winds directions and speeds, differentiated by season, along with average weather conditions by season using NCPA real-time observations noting disturbing local weather. Live data is used with the fire maps

located in Appendix 1. PG&E's Weather Awareness website is a resource for real-time conditions: https://www.pge.com/en_US/safety/emergency-preparedness/natural-disaster/wildfires/psps-weather-map.page?WT.mc_id=Vanity_weather. This information is used in communication and aids to analyze wildfire situations. In addition, prevailing wind patterns and their effect on transmission conductors due to cyclic loading are taken into account during annual Transmission asset inspections conducted in accordance with NCPA's NERC FAC-003 compliance procedure GM-305.

- **Terrain**: Topographic features and terrain affect wildfire migration and area-specific risks. Fires generally burn uphill, especially within steep canyons typical of NCPA's Geothermal site. Wind-driven upslope and up-canyon fires spread rapidly and represent increased fire hazards.
- **Changing weather patterns (climate change)**: Climate change alters vegetation habitat, causing species migration. It may result in increased or decreased precipitation, precipitation type changes (e.g. more rain than snow), higher maximum temperatures, extended heatwaves, more frequent drought. In turn, these changes may cause increased tree mortality, increased stressed vegetation, greater susceptibility to disease or insect infestation.
- **Communities at risk**: Communities located in high-hazard zones are most at risk of wildfires. Communities at Risk are designated places and are unchanging. The risk level around these communities may change from year to year based on overall weather conditions, as well as during the year, changing from the wet season through the dry summer and fall.
- **Fire Frequency**: Over history, the frequency of wildfires affects wildfire risks. Vegetation changes are directly associated with wildfires. In addition to consuming existing vegetation, the new landscape is open to different vegetation types, both native and invasive. With native vegetation, a natural cycle occurs with different species dominating the environment and evolving over an extended timeframe. Since different vegetation types represent varied fire hazards, the risk level also evolves over time in conjunction with vegetation changes.

Wildfires have occurred in the general region of NCPA's hydro and geothermal facilities, however NCPA facilities have not been associated with any ignition source. The 2017 Tubbs and 2019 Kincade Fires affected areas nearby, and immediately adjacent to the geothermal facilities. The 2015 Valley Fire destroyed much of the 21kV Service Line for the Effluent Pump System. Risks specific to NCPA's generation facilities are tied to both residual fuel load (snags) from previous fires and potential soil instability caused by previous damage to area vegetation. These hazards are addressed by enhanced inspection techniques described in Section 5.F

4.B. RISKS RELATED TO DESIGN, OPERATION, AND MAINTENANCE

Risks and risk drivers related to design, construction, operation and maintenance that could create fire ignition sources are listed below. The methodology for identifying, monitoring, analyzing, planning, evaluating safety-wide risks are defined in NCPA's Preventative Strategies and Programs in Section 5.A. These risks include:

- **Equipment/structure/facilities**: Inherent risk of facilities, primarily open wire transmission and distribution ignition events. This risk is also elevated by adjacent facilities (CALPINE, PG&E) that could act as sources of ignition.
- **Object to wire or equipment contact**: Trees, birds, balloons, downed conductors, lightning strikes, or high wind events resulting in contact of equipment
- **Wire to wire contact**: Wires touching one another, and dropping molten metal to the ground
- **Vehicle operations**: Maintenance, inspection or vegetation clearing crew vehicles causing fires (i.e. catalytic converters contacting dry brush)
- **Vegetation clearing**: Chain saws and other mechanized equipment use
- **Hot Work**: Welding or other activity that could cause ignition in the area of work

4.C. CHANGES TO CPUC FIRE THREAT MAP

A key concern for NCPA is the historical risk of wildfires in the vicinity of the agency's facilities, particularly within potential fire hazard zones. Both CAL FIRE and the CPUC have developed maps to identify potential fire hazard zones, published in 2007 and 2018, respectively. NCPA has reviewed current CAL FIRE hazard severity zone and CPUC fire-threat maps with respect to agency facilities, as shown in Appendix 1. These maps have not been adjusted since the noted publication dates nor have any local agencies imposed any expansions to the maps. There has been no new information, or identified changes to the environment, to warrant an expansion of the high-fire threat district.

CPUC Fire Threat Maps are static, based on data available at the time they were created. As noted below, wildfire risks evolve over time in response to the risk drivers listed above. In section 5, annual tree mortality data illustrates a migration of tree mortality, with the risk area expanding from year to year. NCPA will review available data and adjust fire threat hazard zones when applicable to NCPA facilities.

4.C.1. MAP COMPARISONS AND UPDATES

Currently published wildfire hazard maps from CAL FIRE and the CPUC show different boundaries for the risk areas delineated. They also use different terminology for hazard zones. Several factors could account for these boundary differences between agency maps: publication dates, study methodology, vegetation changes over time, recent wildfires, and potential climate change effects. The zones delineated by the CAL FIRE and CPUC maps are discussed below.

CAL FIRE CALIFORNIA FIRE HAZARD SEVERITY ZONE MAP

CAL FIRE generated and published Fire Hazard Severity Zone Maps for the entire state of California in 2007, including separate maps for each county. These maps delineate three hazard zone levels: moderate, high, and very high. The figures in Appendix 1 illustrate these fire hazard severity zones. There has been no new information or changes to the environment identified to warrant an expansion of the high-fire threat district.

CPUC FIRE-THREAT MAPS

The CPUC has developed and published Fire-Threat Maps. These 2018 maps include Tier 2 (elevated fire risk) and Tier 3 (extreme fire risk) zones. Additionally, the CPUC uses a Tier 1 (zero to moderate fire risk) category, which includes a High Hazard Zone (HHZ) designation based on a 2018 U.S. Forest Service-CAL FIRE joint map of tree mortality HHZs. This Tier 1 information addresses the hazard areas with large expanses of dead trees and associated fire risks.

4.C.2. FIRE ZONE REVIEW PROCESS

The existing fire zone review process, set forth by regulatory agencies such as CAL FIRE and CPUC, is an important tool for reducing wildfire risks and hazards. Preparing and executing adequate vegetation management plans is a critical component of this process. The current fire zone process incorporates lessons learned from past major wildfire events, with each new occurrence adding knowledge and forming the basis for improving the process.

Since differences exist between currently published CAL FIRE and CPUC wildfire hazard zone maps, NCPA uses the most conservative approach to vegetation management and asset protection, assuming the highest risk factor from the combined datasets.

5. WILDFIRE PREVENTATIVE STRATEGIES

5.A. PREVENTATIVE STRATEGIES AND PROGRAMS

NCPA's strategies to reduce wildfire risk include continuous evaluation and improvement of its programs and procedures: including NCPA's (1) facility maintenance program, (2) emergency operating procedures , (3) vegetation management programs, and (4) asset documentation programs. These programs include all details such as goals, objective or percentage, monitor ongoing work, accomplishments, internal and external audits, and detailed reports. There are no constraints such as budgets, availability of equipment, knowledge to effectively deploy, or qualified personnel to install and monitor effectively.

(1) Facility Maintenance Program: NCPA has a robust preventive maintenance program to maintain the safe and reliable operation of its transmission and distribution lines. Given the growing risk of wildfires, opportunities for improvement have been identified and will be explored as part of each facility's improvement plan. Additionally, NCPA utilizes risk factors as identified in Section 4.B. during improvement plan evaluations. Improvements, such as listed below, may be implemented based on workable solutions and relative priorities:

- **The Collierville-Bellota (CB) 230 kV Gen-Tie Line**: In 2020 NCPA made improvements on its longest transmission line. More than half of the line is within a Tier 2 fire threat zone. NCPA prioritized the safe and reliable operation of the line. The line is over 30 years old, and a thorough review of the line and its attendant facilities was recently undertaken. A list of improvements included upgrading insulators , hardware, and conductor damping. These major improvements were completed in 2020. This project was considered a major capital improvement and prioritized for wildfire prevention. Avian deterrents and anti-nesting cones were also added in 2020.
- **McKay's Point 17 kV Overhead Line**: This three-span distribution line is in a Tier 3 fire threat zone. This short line is maintained and is monitored consistently. Due to its location and danger tree threat NCPA is seeking a contractor and appropriate hardening improvements. Original improvements were targeted in 2021 but due to contractor issues NCPA is now estimating a 2023 execution.
- **Geothermal 230 kV Gen-Tie Transmission Line**: This nine-span line connects with PG&E's 230 kV system. The line is characterized by long dead-ended spans and thick vegetation, which has been cleared to a 300-foot width across the right of way following CAL FIRE recommendations. The line is consistently inspected and maintained.
- **PG&E/NCPA/Santa Clara/Department of Water Resources Cotenancy 230 kV line**: This co-owned line is operated and maintained by PG&E on behalf of the co-owners, and extends connection of the NCPA and adjacent CALPINE geothermal plant sites to PG&E substations located at Fulton and Lakeville substations. Annual maintenance practices on this line have been enhanced by implementing extended visual inspection techniques. These enhanced inspection techniques are acting to significantly reduce ignition hazards from potential line or connector failures. These practices are now subject to an annual coordination meeting between PG&E and NCPA on behalf of the other co-tenants.

- **Geothermal Effluent Pump System 21 kV Line**: This 6-mile distribution line is in a Tier 3 fire threat zone. This line was largely rebuilt following damage caused by the 2017 Valley Fire. The wood pole line has construction framing typical to distribution construction. In addition to typical maintenance and monitoring of the pole line and down guy structural and foundational health, NCPA works with Cal Fire and Calpine to coordinate vegetation removal and clearance work, in excess of the requirements for rural distribution circuits. This activity includes clearing of fire breaks along routes within the NCPA steam fields as shown in Appendix 5, resulting in reduced risk of fire spread.

(2) Emergency Operating Procedures: NCPA uses emergency operating procedures to safely react to wildfire fire events and help guide employees. In addition to annual evaluation of procedure training effectiveness, NCPA improves its operational awareness and ability to respond to fire events by ensuring that Hydro and Geothermal plant personnel performing work adjacent to NCPA line facilities are able to continuously communicate with plant operations personnel for coordination of emergency response to wildfires.

(3) Vegetation Management Program: NCPA has developed and implemented a Transmission Vegetation Management Program (TVMP) to establish the vegetation maintenance requirements for each facility to achieve reliability of its generation interconnection system. The NCPA document, Generation Services Common Procedure GS-305: Transmission Vegetation Management Program, defines NCPA procedures for vegetation management. The full description of this program is described in Section 5.E.

(4) Asset documentation: NCPA has current facility documentation including geographically referenced facility locations (appendix 1) and current facility drawings, materials lists, and design criteria. This documentation has been coordinated with adjacent asset owners (PG&E and Calpine) to ensure completeness of maintenance actions and track design features (lightning arrestors) that minimize risks of the lines causing an ignition.

NCPA directly participated in the development of the CPUC's Fire-Threat Map,[1] which designates a High Fire-Threat District. In the map development process, NCPA served as a territory lead, and worked with utility staff and local fire and government officials to identify the areas of NCPA's service territory that are at an elevated or extreme risk of power line-ignited wildfire. NCPA has incorporated the High Fire-Threat District into its construction, inspection, maintenance, repair, and clearance practices, where applicable.

A key concern for NCPA is the historical risk of wildfires in the vicinity of the agency's facilities, particularly within potential fire hazard zones. Both CAL FIRE and the CPUC have developed maps to identify potential fire hazard zones, published in 2007 and 2018, respectively. NCPA has reviewed current CAL FIRE hazard severity zone and CPUC fire-threat maps with respect to agency facilities, as shown in Appendix 1.

NCPA reviewed facilities and determined the hazard zones where these facilities are located. These facilities and their locations are described in section 4.

The CPUC defines a High Fire-Threat District consisting of three areas:

[1] Adopted by CPUC Decision 17-12-024.

- Tier 1 High Hazard Zones on the U.S. Forest Service-California Department of Forestry and Fire Protection (CAL FIRE) joint map of Tree Mortality High Hazard Zones
- Tier 2 of the CPUC Fire-Threat Map where there is an elevated risk for utility-associated wildfires
- Tier 3 of the CPUC Fire-Threat Map where there is an extreme risk for utility-associated wildfires

NCPA facilities in relation to CPUC and CAL FIRE threat maps are shown in Appendix 1 of this report.

5.B. POTENTIAL CLIMATE CHANGE EFFECTS

Climate change has affected vegetation in many ways. Droughts are longer and more severe. Large storm events are more common and intense. Summers are hotter and may include more thunderstorms. These climate change factors affect vegetation and the associated wildfire risks:

- Vegetation adapts, with plant migration into different areas
- Vegetation dries out during droughts, presenting increased fire danger
- Stressed vegetation is more susceptible to insect infestations, damaging trees, or accelerating mortality
- Thunderstorms present lighting strike risks along with strong wind events

Extended periods of intense rainfall also typically increase landslide risks. In turn, landslides could damage or topple structures, limit access, or create safety hazards by damaging roads, or cause localized tree mortality by severing root systems. Note that heavy rainfall is not the only landslide trigger mechanism, but it is the one most closely associated with climate change.

5.C. POTENTIAL CLIMATE CHANGE RISK MANAGEMENT IMPACTS

Climate change has affected the risks associated with wildfires, especially in fire hazard zones. Frequent, severe and larger wildfires, and the related impacts to the POU lines, equipment and operations result in impacts to vegetation and increased wildfire risks. Some of the specific climate change impacts that affect wildfire risks include:

- Tree and underbrush growth rates
- Vegetation type changes
- Vegetation migration from existing habitats
- Stress and disease contributing to higher tree mortality

As potential impacts shift over time, fire hazard management practices will evolve and adapt to changing risk management requirements.

5.D. TREE MORTALITY

It is estimated that over 100 million trees in California died from drought-related stress between 2012 and 2017. The extended drought period left millions of acres of forestland highly susceptible

to insect attacks. Drought stress is aggravated in forests with too many trees competing for limited water resources.

In 2015, California established the Tree Mortality Task Force (https://frap.fire.ca.gov/frap-projects/tree-mortality/). This task force was established to identify and map tree mortality areas with the greatest potential for causing harm to people and property. The High Hazard Zones were prioritized for tree removal.

Dead, dying, and diseased trees represent potential wildfire risks for NCPA. Trees adjacent to power line right-of-way represent a hazard due to falling branches or potential toppling. This threat increases substantially with tall snags or trees with dead tops. Dead or highly stressed trees are also an easily ignitable fuel source. They ignite quicker and generally burn faster than healthy trees. NCPA's internal Transmission Vegetation Management Program specifies tree and snag clearances.

5.E. VEGETATION MANAGEMENT

NCPA has developed and implemented a Transmission Vegetation Management Program (TVMP) to establish the vegetation maintenance requirements for each facility to achieve reliability of its generation interconnection system. The NCPA document, Generation Services Common Procedure GS-305: Transmission Vegetation Management Program, defines NCPA procedures for vegetation management. NCPA's TVMP is the plan for all types of vegetation associated with utility infrastructure, from the ground to the sky, which includes vegetation above and below electrical lines.

NCPA meets or exceeds the minimum industry standard vegetation management practices. For transmission-level facilities, NCPA complies with NERC FAC-003-4. For both transmission and distribution-level facilities, NCPA meets: (1) Public Resources Code section 4292; (2) Public Resources Code section 4293; (3) General Order 95 Rule 35; and (4) General Order 95 Appendix E Guidelines to Rule 35.

The TVMP enhances reliability by preventing outages from vegetation located within or adjacent to the power line right-of-way, by maintaining required clearances between power lines and vegetation within or adjacent to the right-of-way, by reporting vegetation-related outages of the system to WECC, and by documenting the process for an annual vegetation work plan. The program satisfies the requirements for vegetation management specified in NERC FAC-003-4, which requires a Generator Owner to have documented maintenance strategies, procedures, processes, or specifications to prevent the encroachment of vegetation into the Minimum Vegetation Clearance Distance of applicable lines as specified in requirement R3.

NCPA uses a combination of its own staff (manager, supervisor or competent designee) and the retention of qualified consultants (such as scientific experts in ecology, fire ecology, fire behavior, geology, and meteorology) with experience in line design, line construction, NERC Standards compliance, and vegetation management to develop and maintain the TVMP.

The TVMP specifies technical requirements for staff and contractors to comply with or verify compliance with Cal/OSHA standards and NCPA Electrical Safety Procedure GS-103 ensures Cal/Osha and Minimum Approach Distances (MAD).

The objectives of the TVMP are to:

- Adhere to the Power Line Fire Prevention Field Guide published by CAL FIRE in November 2008 and used by California utilities for the care and maintenance of trees, shrubs, and other woody plants when pruning vegetation near electric facilities.
- Maintain defined clearance distances between the generation interconnection facilities and all trees, brush, and other vegetation that could grow too close to electrical facilities including conductors, poles, and guy wires. Since the clearances specified in the Power Line Fire Prevention Field Guide are more stringent than the MVCD described in FAC-003-4, NCPA adheres to the CAL FIRE field guide.
- Where appropriate and necessary, develop site-specific, environmentally sensitive, cost-effective and socially responsible solutions to vegetation control near the NCPA generation interconnection facilities. Document the process in NCPA's CMMS annual Preventive Maintenance process for the annual vegetation work plan for applicable power lines and other facility infrastructure (steam lines, switchyards, firebreaks). An example of firebreaks implemented to address risk of fire spread at the NCPA Geothermal site is provided in Appendix 5 to this Plan.
- Maintain public and worker safety, maintain compliance with NERC standards and other regulatory and legal requirements, provide reliable electric service that allows for operational flexibility, and promote environmental stewardship and habitat enhancement.
- Potential improvements to its programs include increasing the frequency and scope of aerial lidar surveys on its transmission and distribution facilities, and a continued emphasis on identification and timely removal of danger and hazard trees that threaten overhead transmission and distribution lines. NCPA's asset management system allows potential improvement to be evaluated as observations and comments are made when work orders for maintenance items are executed.

5.F. INSPECTIONS

NCPA performs annual inspections of its transmission and distribution facilities in accordance with General Order 95 and General Order 165. The following additional inspections have been performed on the CB 230 kV line:

- Lidar vegetation flights
- Corona scans of insulators
- Infrared "hot-spot" inspections of conductor, conductor splices, and dead-end hardware.
- In addition to its annual ground-based inspection, NCPA may augment inspections with aerial drone and/or helicopter surveys.

These inspections are documented and issued by NCPA's computerized maintenance management system (CMMS), and records of those inspections are maintained.

Strategic improvements to the inspection program include increasing the frequency and scope of inspections, increasing the use of drone-based visual inspections, consideration of new technology, improving the inspection methodology approach, and consideration of fire threat zones in the inspection programs. NCPA's asset management system also allows these improvements to be evaluated as observations and comments are made when work orders for maintenance items are executed.

The TVMP also establishes requirements for the type and schedule of right-of-way vegetation inspections. Specific hazards addressed in the TVMP include identification of encroachment into the Clearance area (section 6.3.7), and additional inspection activities to identify deadfall and brush in the ROW that could provide fuel for wildfire spread (section 6.3.9). The TVMP also provides explicit direction to treat emergent conditions of a potential hazard as an immediate mitigation priority without any intentional delay (section 6.4.4), including addressing extent of condition.

Section 4.B. of this WMP outlines the unique risks NCPA inspects for.

5.G. FIRE PREVENTION, SAFETY, EMERGENCY RESPONSE TRAINING

NCPA has implemented work rules and complementary training programs for its workforce to help reduce the likelihood of the ignition of wildfires.

Trainings for employees to cover fire hazards and NCPA's Fire Prevention Plan consists of fire extinguisher training, fire prevention training, hazardous materials handling training, and emergency response training. These trainings are conducted by an outside vendor and/or NCPA supervisors or environmental health and safety specialists.

NCPA employees also receive training on emergency response plans when the employee is assigned initially to the job, when the plan changes, and when the employee's responsibilities or designated actions under the plans change.

Each facility manager is responsible for conducting site-specific training to ensure that the purpose and function of NCPA safety procedures are understood by employees and that knowledge and skills required for safe operation are acquired by employees. Refresher training is performed and documented on an annual basis, and retraining is conducted when:

- An annual audit reveals there are deviations from or inadequacies in the employee's knowledge of the procedure or changes in the regulations
- A new or revised control method of a system or piece of equipment

The following procedures provide additional guidance for employee training specific to the areas described in these NCPA documents:

- Generation Services Common Procedure GS-101: Lock Out Tag Out Try Procedure
- Generation Services Common Procedure GS-103: Electrical Safety Procedure
- Generation Services Common Procedure GS-107: Proper Handling of Hazardous Waste
- Generation Services Common Procedure GS-111: Hot Work Procedure
- Generation Services Common Procedure GS-115: Welding Safety Procedure

- Generation Services Common Procedure GS-126: Fire Protection and Prevention Plan
- Power Management Common Procedure PM-108: Operating Instructions and Emergency Assistance
- Power Management Common Procedure PM-201: Emergency Operating Guidelines, Collierville Power House Bellota-Collierville 230kV Lines

5.H. RECLOSING POLICY

NCPA does not own or use automatic reclosers on its 230 kV within the scope defined in Section 4 of this WMP. Relaying equipment on the 21 kV Bear Canyon line at the Geothermal site is also set to a "zero-reclose to lockout", requiring physical inspection of the line prior to restoration. This is a typical approach for utility operations in rugged and remote terrain, for both personnel and fire hazard safety reasons. In the event of a planned or emergency line trip, close coordination with NCPA generation services and dispatch as well as with PG&E's grid control center is mandatory, and lines are only re-energized after extensive line patrol visual confirmation. If the lines are tripped due to a forecasted or imminent wildfire or if a wildfire is believed to be caused by downed lines, close coordination with CAL FIRE's onsite representative and control center are required before NCPA's generation services attempts to energize the line.

5.I. DE-ENERGIZATION

In the event of active fire situations in the vicinity of the CB 230 kV transmission line, NCPA may be directed by CAL FIRE to de-energize the line's two circuits for firefighter and/or aircraft protection. The on-call Hydro Supervisor will coordinate Hydro personnel response to any wildland fires in and around the CB 230 kV transmission lines and contact on-site CAL FIRE personnel if necessary. If CAL FIRE requests de-energizing both of the 230 kV lines, the NCPA Dispatch Center will shut down both Collierville units before de-energizing these lines. NCPA is currently able to de-energize both circuits of the CB 230 kV line via SCADA and other procedures within 20 minutes.

The Collierville 480 VAC station service is designed to automatically transfer to the offsite PG&E 17 kV source. If the 17 kV source is not available, the 480 VAC standby diesel generator will start and provide station service power. The NCPA Dispatch Center will notify Generation Services Hydro staff of any issues with the 17 kV source or if the diesel generator is in operation. The NCPA Dispatch Center will notify the CAISO and work with PG&E's Grid Control Center to de-energize both 230 kV lines.

NCPA's Geothermal plant manager relies on PG&E to determine de-energization. NCPA's Hydro plant manager has the authority to preemptively shut off power due to fire-threat conditions; however, this option will only be used in extraordinary circumstances. NCPA will make a case-by-case decision to shut off power.

NCPA also maintains transmission line trip procedures to significantly reduce fire risk, including requiring patrols prior to restoring transmission lines. Requiring patrols during high fire risk scenarios is typical and recommended of California utilities.

5.J.1. IMPACTS TO PUBLIC SAFETY

NCPA has no retail customers, and de-energizing agency facilities will not directly affect retail customers, who will be notified by their specific utility providers of PSPS.

5.J.2. CUSTOMER NOTIFICATION PROTOCOLS

NCPA provides wholesale power to Cities and utilities, typically known as NCPA members, only via the utility grid. Since NCPA does not have retail customers, no customer notification protocols are in place. However, NCPA is the primary point of contact between PG&E PSPS and its member utilities. Formal procedures are currently in place, NCPA-PM-501, to notify NCPA member utilities of de-energization activities. The notifications are provided via voice communication to primary and backup points of contact within each NCPA member utility. Attachment 1 to Procedure NCPA-PM-501 is included as Attachment D to this Wildfire Mitigation Plan.

6. LEFT BLANK

7. RESTORATION OF SERVICE

After a de-energization event, NCPA will restore service in coordination with PG&E's restoration efforts. NCPA will follow PM-201 and Geothermal Facilities Maintenance Procedure (GEO-646) which specifically address restoration for Hydro and Geothermal facilities respectively. These procedures contain the steps that must be taken to restore such as inspecting, repairing, testing, and finally restoring.

7.A. METRICS AND ASSUMPTIONS FOR MEASURING PLAN PERFORMANCE

NCPA will track three metrics to measure the performance of this Wildfire Mitigation Plan Metrics are evaluated yearly: (1) number of fire ignitions; (2) number of NCPA wires down; and (3) fall in hazard trees ignitions.

METRIC 1: FIRE IGNITIONS

NCPA will track fire ignitions in their territory as follows:

- Self-ignited or human-caused
- An NCPA facility failure was associated with the fire
- An NCPA electrical facility wire-to-wire contact was associated with the fire
- The ignition was a result of an extreme weather event

2020 Metric Summary: GEO – 0 ignitions, Hydro – 0 ignitions

2021 Metric Summary: GEO – 0 ignitions, Hydro – 0 ignitions

METRIC 2: WIRES DOWN

The second metric is the number of NCPA distribution and transmission wires downed. A wire down event includes any instance where an electric transmission or primary distribution conductor falls to the ground or on to a foreign object. NCPA will divide the wires down metric between wires down inside and outside of High Fire Threat Districts. All wires down events will be documented.

2020 Metric Summary: GEO – 0 Wire Down, Hydro – 0 Wire Down

2021 Metric Summary: GEO – 0 Wire Down, Hydro – 0 Wire Down

METRIC 3: FALL IN HAZARD TREES IGNITIONS

NCPA has added a metric that measures an element that could lead to a wildfire ignition:

- Fall in trees (trees of height sufficient to represent a contact hazard to the Distribution Line if destabilized due to soil instability at the tree base) without adequate clearance to the ROW in areas previously affected by fire.

2023 Metric Summary: GEO – 10 Locations, 0 Fall Ins; Hydro – 2 Locations, 0 Fall Ins.

7.B. IMPACT OF METRICS ON PLAN

NCPA plans to continue tracking these metrics as a method of documenting overall WMP success at identifying and containing risk. Additional metrics will be added to the WMP to help with identification of which lines are most susceptible to risk factors from unexpected outages (animal or vegetation induced), time-of-year risks including drought or excessive rainfall that could shift timing or scope of VM efforts and enhanced inspection requirements, as well as shifting fire threat district risks due to additional community developments adjacent to NCPA facilities or impact of maintenance deferment on existing lines. Through this metric review, NCPA will identify lines and other facility assets that are disproportionately impacted and could benefit by focused risk reduction measures that represent potential improvements to the plan.

2020 through 2023 WMP Impact Due to Metrics – The metrics above show zero incidents and indicate success.

Within the context of California's exposure to wildfire ignition risk resulting from "wires down" or "wire/tree interaction", NCPA operates an asset base in High fire risk territory that consists of roughly 35 miles of 230 kV transmission and just over 3 miles of 21 kV distribution. By contrast, PG&E operates in excess of 99,000 miles of transmission and distribution circuits within its service territory, experiencing an incident rate of 308 "wires down" or "wire/tree interaction" during 2022, for a rate of 0.3% per mile year (PG&E 2023-2025 WMP Revision 1 Figure PG&E-6.1.1-2, page 136). Assuming NCPA's track record is no better than PG&E, NCPA should expect to experience 0.12 incidents per mile year, or about one incident in 8.5 years. A "zero" metric would be indicative of success under NCPA's WMP program metrics, and should be sustainable for a period in excess of 10 years.

Acknowledging that the "zero" metric does not provide insight into NCPA's thorough inspection and maintenance activities to keep its transmission and distribution assets healthy, the Agency is considering addition of a metric to track total inspection observations for each overhead line asset. This will enable identification of locations where service conditions are contributing to a higher than normal number of observations and will assist risk reduction efforts by allowing focused attention on potential root causes for the elevated observation rate. NCPA anticipates investigation into historic line inspection records over the course of the 2023-2024 Fiscal Year that will enable verification of the usefulness of this metric.

7.C. MONITORING AND AUDITING THE PLAN

This WMP is presented to the NCPA Commission on an annual basis along with metrics and a summary of updates. Additionally, a qualified independent evaluator will present a report on this plan to the NCPA Commission. See section 8.

7.D. IDENTIFYING AND CORRECTING DEFICIENCIES IN THE PLAN

NCPA may correct deficiencies and implement plan improvements as needed. Some of these activities and their alignment to the Agency's Strategic Priorities are defined in Section 2C. In support of these Priorities, the annual WMP review provides a framework for evaluation of the effectiveness of the Agency's plan, both in terms of the internal results achieved, but also in terms of the potential for shifting hazards resulting from ongoing drought (e.g., additional areas being designated as high fire threat) and weather induced changes (e.g., increased fire load as a result of high than historic rainfall totals). The Agency's strategy to assure availability of its assets involves an ongoing process of assessing risk and developing cost effective means to address those risks within the WMP (e.g., cooperative effort with Calpine to maintain fire breaks, use of WAPA for transmission line conductor repair and replacement), as reflected in the record of Agency annual WMP reviews and revisions. Improvements will be documented in the annual report to the NCPA Commission.

7.E. MONITORING THE EFFECTIVENESS OF INSPECTIONS

Line inspections for NCPA fall into two categories:

1. Line patrol and evaluation of line facilities on a structure-by-structure basis. This is either ground or aerial (drone or helicopter) based.
2. Vegetation monitoring and evaluation, either ground-based on a structure-by-structure and span-by-span basis or by lidar aerial methods.

Measuring the effectiveness of these inspections can be performed by review by independent professionals of the inspection documentation and analysis in the case of the lidar vegetation inspection. Baseline comparison of results from adjacent drought and excessive rainfall years will inform earlier inspection timing and/or enhanced scope of the inspections. Developing metrics surrounding risks identified and mitigated will help reinforce a "zero-tolerance" approach for VM and equipment failure induced outages. Baseline of inspection practices with adjacent owners (PG&E and CALPINE) will also be used to evaluate effectiveness. A second method would include ride-alongs with inspection personnel to review their methodology and reporting. Lastly, an independent review of similar facilities can be performed and compared and reviewed with inspection personnel. NCPA currently conducts ride-alongs with both Cal-Fire staff and internal NCPA staff. Additional objectives are stated in Section 2C above.

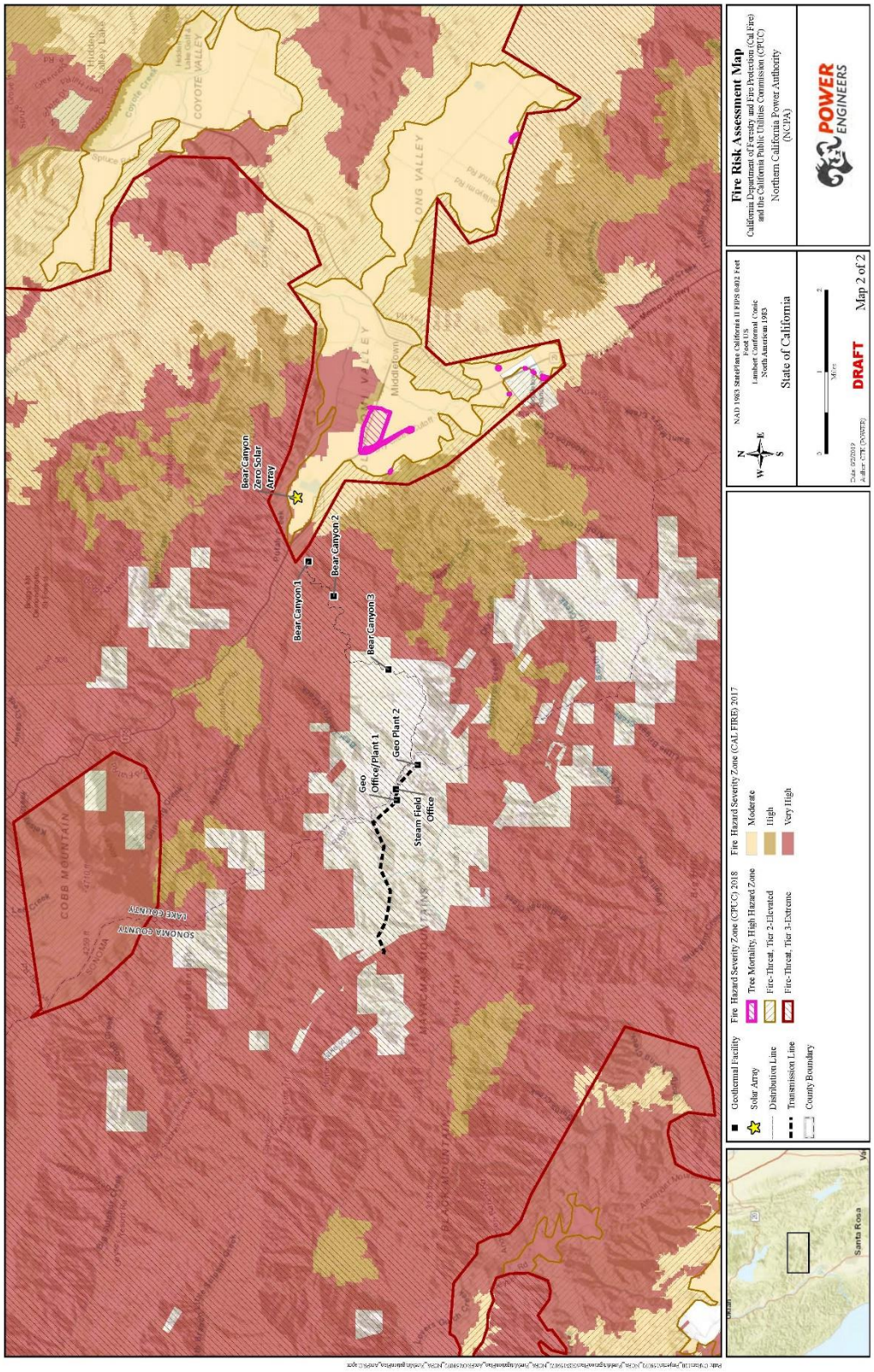
8. INDEPENDENT AUDITOR

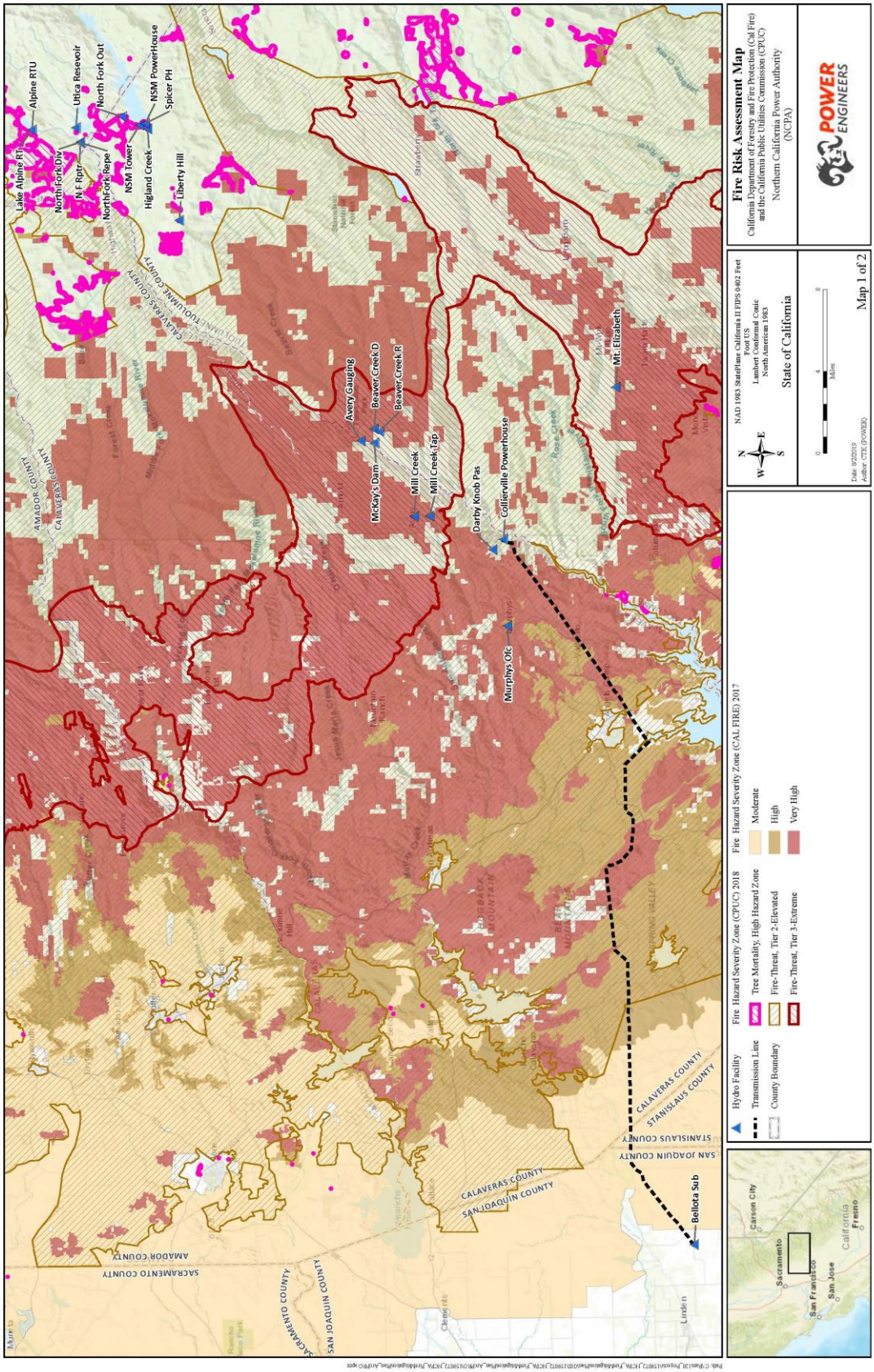
In 2019, NCPA anticipated that the CPUC would provide a list of qualified independent evaluators. In lieu of such a list, NCPA drew from a list it compiled following a Request for Qualifications issued in June 2019. The selection was based on competitive bid.

In 2020, NCPA competitively bid and contracted with a qualified independent evaluator, Dudek, with experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of this WMP. The independent evaluator issued a report (that is attached as an appendix to this report) and posted to the NCPA website. The independent evaluation and report were completed April 30th 2020.

In 2021, NCPA competitively bid and contracted with a qualified independent evaluator, Dudek, to review this WMP using the recommendations provided by the Wildfire Safety Advisory Board's (WSAB) "Guidance Advisory Opinion for the 2021 Wildfire Mitigation Plans of Electric Publicly Owned Utilities and Cooperatives" published and approved December 9, 2020. Per the WSAB, "The guidance document should be viewed as offering an efficient way to meet the WMP requirements in Public Utilities Code Section 8387(b)(2), not as adding to the statutory requirements."

APPENDIX 1 – FIRE RISK ASSESSMENT MAPS




Alpine RTU
Utica Reservoir
North Fork Out
NSM PowerHouse
Spicer PH
Lake Alpine RT
North Fork Div
N F Rptr
North Fork Repe
NSM Tower
Higland Creek
Liberty Hill
Avery Gauging
Beaver Creek D
Beaver Creek R
McKay's Dam
Mill Creek
Mill Creek Tap
Darby Knob Pas
Collierville Powerhouse
Murphys Ofc
Mt. Elizabeth
Bellota Sub
CALAVERAS COUNTY
SAN JOAQUIN COUNTY
STANISLAUS COUNTY
AMADOR COUNTY
SACRAMENTO COUNTY
Hydro Facility
Transmission Line
County Boundary
Fire Hazard Severity Zone (CPUC) 2018
Tree Mortality, High Hazard Zone
Fire-Threat, Tier 2-Elevated
Fire-Threat, Tier 3-Extreme
Fire Hazard Severity Zone (CAL FIRE) 2017
Moderate
High
Very High
NAD 1983 StatePlane California II FIPS 0402 Feet
Foot US
Lambert Conformal Conic
North American 1983
State of California
Miles
Fire Risk Assessment Map
California Department of Forestry and Fire Protection (Cal Fire)
and the California Public Utilities Commission (CPUC)
Northern California Power Authority
(NCPA)
POWER ENGINEERS
Map 1 of 2

853 LINCOLN WAY, SUITE 208
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.887.1250

April 30, 2020 12108.02

Mr. Jeremy Lawson
Northern California Power Agency
651 Commerce Drive
Roseville, CA 95678

Subject: Evaluation of Northern California Power Agency Wildfire Prevention and Mitigation Plan

Dear Mr. Lawson:

Dudek conducted an evaluation of the City of Northern California Power Agency (NCPA) Wildfire Mitigation Plan (WMP), as required under California Public Utilities Code (CPUC) Section 8387(b). CPUC Section 8387(b), as modified by Senate Bill (SB) 901, and the Administrative Law Judge's Ruling issued on January 17, 2019 in CPUC Docket No. R.18-10-007 (ALJ Ruling), applies to publicly-owned electric utilities and requires preparation of a Wildfire Mitigation Plan before January 1, 2020. CPUC Section 8387(c) requires that an independent evaluator review and assess the comprehensiveness of a publicly-owned utility's WMP and issue a summary report.

Dudek, as an independent plan evaluator, conducted an initial review of NCPA's Draft WMP (version 1.0). On April 21, 2020, Dudek provided a summary matrix with recommendations for Draft WMP modifications. The focus of the evaluation was to determine whether the Draft WMP addressed all required elements under CPUC Section 8387(b)(2) (included in Attachment A). The following summarizes the recommended clarifications/modifications identified during the initial review of the Draft WMP (version 1.0), by required element:

- 8387(b)(A): Provide clarification and detail regarding plan implementation responsibility.
- 8387(b)(E): Identify previous plan metrics, as available.
- 8387(b)(L): Provide details regarding risk drivers, risk impacts, and how NCPA will identify, monitor, analyze, plan/evaluate and respond to risks.
- 8387(b)(N)(i): Clarify monitoring efforts associated with WMP implementation and clearly identify performance monitoring details in the plan. Clarify plan auditing and review procedures.
- 8387(b)(N)(ii): Provide clarification and detail regarding plan implementation, review, and plan deficiency correction responsibility.
- 8387(b)(N)(iii): Clarify line/equipment inspection responsibility, timeframes, work plan approach, and target inspection goals, and performance metrics.

Subsequently, NCPA elected to modify its Draft WMP that incorporated Dudek's recommended modifications. The Revised WMP (version 1.1) was provided to Dudek on April 29, 2020. Dudek reviewed the Revised WMP and determined that it appropriately addressed all elements required under CPUC Section 8387(b)(2).

Should you have any questions or require additional information, please do not hesitate to contact me at (530) 863-4650.

Sincerely,

Scott W. Eckardt

Scott Eckardt, RPF
Project Manager

Att.: A. Required WMP Elements under PUC Section 8387(b)
cc: Michael Huff, Dudek
Jason Neuman, Dudek

Required WMP Elements under PUC Section 8387(b)

PUC 8387(b)(2) Section	Description
A	An accounting of the responsibilities of the persons responsible for executing the plan.
B	The objectives of the wildfire mitigation plan.
C	Description of the preventative strategies and programs to be adopted by the 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 made 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 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 on health and communication infrastructure
G	Appropriate and feasible procedures for notifying a customer who may be impacted by the de-energizing of electric 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:
J(i)	Risks and risk drivers associated with design, construction, operations, and maintenance of the local publicly owned electric utility or electrical cooperative's equipment and facilities.
J(ii)	Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned 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 currently identified in a commission fire threat map, and identification of where the commission should expand the 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 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:
N(i)	Monitor and audit the wildfire mitigation plan.
N(ii)	Identify any deficiencies in the wildfire mitigation plan or its implementation, and correct those deficiencies.
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, and other applicable statutes, or commission rules.

853 LINCOLN WAY, SUITE 208
AUBURN, CALIFORNIA 95603
T 530.887.8500 F 530.887.1250

May 3, 2021

Mr. Jeremy Lawson
Northern California Power Agency
651 Commerce Drive
Roseville, CA 95678

Subject: Independent Evaluation Report of Northern California Power Agency's Wildfire Mitigation Plan Ver. 1.2

I. INTRODUCTION

Northern California Power Agency (NCPA) contracted with Dudek to engage in an independent evaluation of its Wildfire Mitigation Plan (WMP). This independent evaluation report (Report) describes the technical review and evaluation of the WMP prepared by Dudek, performed in April 2021 and completed on April 26, 2021.

Dudek conducted an evaluation of NCPA's WMP, as required under California Public Utilities Code (PUC) §8387(b). PUC §8387(b), as modified by Senate Bill (SB) 901, and the Administrative Law Judge's Ruling issued on January 17, 2019 in California Public Utilities Commission (CPUC) Docket No. R.18-10-007 (ALJ Ruling), applies to local publicly owned electric utilities and required preparation of a WMP before January 1, 2020, and revising/updating the WMP in 2020 and annually thereafter.

The WMP requirements are codified in PUC §8387(b)(2) for local publicly owned electric utilities (POUs). PUC §8387(c) requires that an independent evaluator review and assess the comprehensiveness of a POU's WMP and issue a summary report.

Dudek conducted an initial review of NCPA's WMP (version 1.2) and provided recommendations for clarifications/modifications on April 8, 2021. The focus of the evaluation was to determine whether the WMP included all elements required under PUC §8387(b)(2) (listed in Attachment A). The following summarizes the recommended clarifications/modifications identified during the initial review, by required element. Required elements not identified below were determined to satisfactorily meet code requirements in the WMP.

- 8387(b)(2)(A): While the organizational structure, responsible department and responsible position are identified, it is not clear what the responsible position's responsibilities are for executing the WMP.
- 8387(b)(2)(C): Add description of programs. Reference is made to the line maintenance program. No definitive description is provided for the proposed programs.
- 8387(b)(2)(E): Include discussion of application of previous metrics. No reference is included regarding the impacts on the WMP from past metrics.
- 8387(b)(2)(F): Enhance section to clarify role as wholesaler vs. retailer. Reclosers are not employed. Impacts to Public Safety is addressed; any impacts would be addressed by providers of Public Safety Power Shutoffs (PSPS). Any de-energization is coordinated with CAL FIRE and PG&E.

- 8387(b)(2)(G): Enhance section to clarify role as wholesaler vs. retailer. As a wholesale provider NCPA has no retail customers; any impacts would be addressed by providers of PSPS.
- 8387(b)(2)(J): Add list of risks and risk drivers related to design, construction, operation and maintenance; they currently are not addressed.
- 8387(b)(2)(K): Not addressed. Rather than referring solely to the High Fire-Threat District, include description of the local geography, any specific areas of concern and identification of any changes to be made.
- 8387(b)(2)(M): Needs clarification and details. Statement is very limited with no details, only that restoration will occur in coordination with PG&E and General Order (GO)-646 procedures. The section should be enhanced to include details on PG&Es restoration efforts and the GO-646 procedure.
- 8387(b)(2)(N): The section should be enhanced to include details on how the monitoring will occur throughout the year. It is not clear how deficiencies are identified. Clarification is needed whether or not the proposed effectiveness inspection methods are actually taking place, and if so, by whom.

Following updates to all of the above, the WMP was found to meet all the requirements of PUC §8387(b)(2).

In addition, though not required to do so, NCPA requested Dudek to conduct an evaluation of the WMP for compliance with the Wildfire Safety Advisory Board 2020 WMP guidance recommendations. Following updates, the WMP was found to meet all the recommendations of the Guidance Advisory Opinion for 2021 WMPs (See Attachment B for Compliance Matrix).

II. WILDFIRE MITIGATION PLAN REQUIREMENTS

A. Senate Bill 901

Per Senate Bill (SB) 901, all Publicly Owned Utilities (POUs) are required to adopt a Wildfire Mitigation Plan (WMP), which shall be reviewed by an independent third-party evaluator. SB 901 requires the governing board to determine whether any portion of the geographical area where the utility's overhead electrical lines and equipment are located has a significant risk of catastrophic wildfire resulting from those electrical lines and equipment. The bill directs electrical utilities to annually prepare WMPs 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 WMP before January 1, 2020. The requirements for POUs are presented in PUC §8387. In addition, the WMP shall be reviewed by an approved, independent, third-party evaluator to review and assess the comprehensiveness of, and the POU's compliance with, this Plan.

B. AB 1054 & AB 111

Per Assembly Bill (AB) 1054, POUs must annually submit a WMP to the California Wildfire Safety Advisory Board, which will review the WMP and provide recommendations on mitigating wildfire risk. AB 1054 contains similar WMP requirements to SB 901 but allows WMPs of a three-year, rather than one-year duration.

AB 111 establishes the Wildfire Safety Division within the Public Utilities Commission.

C. Northern California Power Agency WMP Requirements

PUC §8387(b)(2) lists the statutory requirements for WMPs. These are the specific elements that the independent evaluator must review in order to make its determination for this report. The specific elements that must be addressed in NCPA's WMP are included in Table A (see Attachment A) and are summarized here for reference.

- The responsibilities of persons responsible for executing the plan.
- The objectives of the wildfire mitigation plan.
- The preventive strategies and programs to be adopted to minimize the risk of its electrical lines and equipment causing catastrophic wildfires.
- The metrics to use to evaluate the wildfire mitigation plan's performance.
- How the application of previously identified metrics has informed the wildfire mitigation plan.
- Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts.
- Procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. Plans for vegetation management.
- Plans for inspections of the electrical infrastructure.
- Description of all wildfire risks, and drivers for those risks, throughout the service territory, including design, construction, operation, and maintenance of equipment and facilities, and topographic and climatological risk factors.
- Identification of any geographic area in the service territory that is a higher wildfire threat than is identified in a commission fire threat map.
- Identification of enterprise-wide safety risk and wildfire-related risks.
- How the service will be restored after a wildfire.
- The processes and procedures used to monitor and audit the implementation of the wildfire mitigation plan, identify any deficiencies, and the effectiveness of electrical line and equipment inspections.

III. DESCRIPTION OF NORTHERN CALIFORNIA POWER AGENCY

NCPA is a Joint Powers Agency, which owns and operates electrical generation facilities. NCPA is governed by a Commission comprised of one representative for each of its public power utility members.

The WMP applies to a geothermal facility and a hydro facility that are located in two different geographical areas. These two facilities contain electrical equipment in high fire threat locations. The geothermal plant is located around the Geyser territory in Lake County and the Hydro Electric Facility is located in the North Fork Stanislaus River watershed (Calaveras County).

NCPA electrical infrastructure consists of facilities that are in Moderate to Very High Fire Hazard Severity Zones (CAL FIRE) and/or Tier 2/3 CPUC Fire Threat Zones.

NCPA has taken appropriate actions to help prevent and respond to the increasing risk of devastating wildfires by following all applicable design, construction, operation, and maintenance requirements that reduce safety risks associated with its electric system.

IV. INDEPENDENT EVALUATION

A. Independent Evaluator Requirement

PUC §8387 requires each POU to "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." Additionally, the independent evaluator's assessment of the comprehensiveness of the POU's WMP must be issued in a report that is both posted to the POU's website and presented at a public meeting of the POU's governing board.

B. Dudek's Qualifications

According to PUC §8387(c), the qualified independent evaluator that performs the assessment of NCPA's WMP must have "experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of its wildfire mitigation plan." NCPA has determined that Dudek is the independent evaluator who adequately understands the local conditions and fire risks of the service area.

C. Evaluation Methodology

Dudek evaluated the comprehensiveness the NCPA WMP on the following measures:

- Statutory Compliance: Dudek ensured that each required element specified in PUC §8387 is either addressed in NCPA's WMP or that NCPA has sufficiently described why that element is not applicable due to NCPA's size, geography, system or other relevant factor.
- Industry Comparison: Dudek is familiar with existing industry practices and has reviewed the local POU WMPs previously filed with the CPUC. Dudek has compared NCPA's WMP against existing practices and any comparable actions planned by the POUs.

D. Metrics

The NCPA WMP uses the following metrics to measure performance of its wildfire mitigation measures: (1) number of fire ignitions, and (2) wires down events. Dudek has determined that these are appropriate metrics for this WMP. Dudek will continue to monitor the metrics selected in the CPUC's current Wildfire Mitigation Plan rulemaking for utilities (per R.18-10-007) and determine if any additional metrics are applicable to POUs and should be incorporated into future WMPs.

V. EVALUATION OF THE NORTHERN CALIFORNIA POWER AGENCY WILDFIRE MITIGATION PLAN

A. Minimizing Wildfire Risks

PUC §8387(a) requires the following: 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.

The WMP describes the safety-related measures that NCPA follows to reduce its risk of causing wildfires. Dudek has determined that NCPA complies with this standard due to the construction of NCPA's equipment and resources.

B. Evaluation of WMP Elements

Dudek found that NCPA's WMP meets the statutory requirements of comprehensiveness per PUC §8387. The review of the WMP's elements is summarized relative to the application of the WMP. The table in Attachment A lists each required element for NCPA's WMP and provides Dudek's assessment of the comprehensiveness of that element within the WMP.

Below is a brief summary of WMP elements as required by PUC §8387, including restating sections of the WMP where applicable.

8387(b)(2)(A): Responsibilities of Persons Responsible for Executing the Plan.
Under the direction of the Assistant General Manager for Generation Services, the plant managers are responsible for implementation and execution of the WMP with respect to their facilities.

8387(b)(2)(B): Objectives of the Wildfire Mitigation Plan

The objective of the WMP is to reduce the risk of wildfires that could be ignited or propagated by NCPA electrical equipment or facilities in high fire threat locations.

8387(b)(2)(C): Prevention Strategies and Programs
NCPA's strategies to reduce wildfire risk include continuous evaluation and improvement of its programs and procedures: including NCPA's (1) facility maintenance program, (2) emergency operating procedures, (3) vegetation management programs, and (4) asset documentation programs. These programs include all details such as goals, objective or percentage, monitor ongoing work, accomplishments, internal and external audits, and detailed reports.

8387(b)(2)(D): Metrics and Assumptions for Measuring WMP Performance
The NCPA WMP uses two metrics to measure performance of its wildfire mitigation measures: (1) number of fire ignitions, and (2) wires down events. Dudek has determined that these are appropriate metrics for this WMP.

8387(b)(2)(E): Impact of Previous Metrics on WMP

The metrics show zero incidents and indicate success; no WMP changes due to metrics.

8387(b)(2)(F): Reclosing Protocols
NCPA does not own or use automatic reclosers on its 230 kV within the scope defined in this WMP.

8387(b)(2)(G): De-energization Notification Procedures

In the event of active fire situations, NCPA may be directed by CAL FIRE to de-energize the lines for firefighter and/or aircraft protection. If CAL FIRE requests de-energizing both of the lines, the NCPA Dispatch Center will shut down units before de-energizing these lines.

8387(b)(2)(H): Vegetation Management

NCPA has developed and implemented a Transmission Vegetation Management Program (TVMP) to establish the vegetation maintenance requirements for each facility to achieve reliability of its generation interconnection system. The NCPA document defines procedures for vegetation management. NCPA's

TVMP is the plan for all types of vegetation associated with utility infrastructure, from the ground to the sky, which includes vegetation above and below electrical lines.

8387(b)(2)(I): Inspections
NCPA performs annual inspections of its transmission and distribution facilities in accordance with General Order 95 and General Order 165. In addition to its annual ground-based inspection, NCPA may augment inspections with aerial drone and/or helicopter surveys.

8387(b)(2)(J)(i): Risks and Risk Drivers Associated with Design and Construction Standards
Risks and risk drivers related to design, construction, operation and maintenance include equipment/structure/facilities, object to wire or equipment contact, wire to wire contact, vehicle operations, vegetation clearing, and hot work.

8387(b)(2)(J)(ii): Risks and Risk Drivers Associated with Topographic and Climatological Risk Factors
Risks and risk drivers related to Topographic and Climatological Risk Factors include extended drought, vegetation type, vegetation density, weather, high winds, prevailing winds, terrain, changing weather patterns and communities at risk.

8387(b(2))(K): Geographical Area of Higher Wildfire Threat
To identify the areas of NCPA's service territory that are at an elevated or extreme risk of power line-ignited wildfire, NCPA has incorporated the High Fire-Threat District into its construction, inspection, maintenance, repair, and clearance practices, where applicable.

8387(b)(2)(L): Enterprise-wide Safety Risks
NCPA regularly evaluates enterprise safety risks, which include severe operating conditions and contingencies. NCPA also performs regular analysis of risks to improve the ability to manage the risks effectively.

8387(b)(2)(M): Restoration of Service
After a de-energization event, NCPA will restore service in coordination with PG&E's restoration efforts. NCPA will follow PM-201 and Geothermal Facilities Maintenance Procedure (GEO-646) which specifically address restoration for Hydro and Geothermal facilities respectively.

8387(b)(2)(N)(i): Monitoring and Auditing WMP Implementation
The WMP is presented to the NCPA Commission on an annual basis along with metrics and a summary of updates.

8387(b)(2)(N)(ii): Identifying and correcting WMP deficiencies
NCPA may correct deficiencies and implement plan improvements as needed. Improvements will be documented in the annual report to the NCPA Commission.

8387(b)(2)(N)(iii): Monitoring and Auditing the effectiveness of inspections
NCPA uses General Orders 95 and 165 as guides to inspect its electric supply system.

CONCLUSION

Dudek concludes that the Northern California Power Agency Wildfire Mitigation Plan comprehensively addresses all of the applicable statutorily required elements for a Publicly Owned Utilities' WMP as specified in California

Public Utilities Code Section 8387, and has been updated to include modifications from the previous year's WMP. Dudek further finds that NCPA has taken reasonable actions to minimize the risk that its lines or equipment will cause a wildfire.

Prepared by,

Douglas V. Nickles, RPF
Fire Protection Specialist

Att.: *A. WMP Required Element Compliance Matrix under PUC Section 8387*
B. Wildfire Safety Advisory Board 2020 Guidance Recommendations Compliance Matrix
cc: *Scott Eckardt, Dudek*

WMP Required Element per PUC Sec 8387(b)(2)	NCPA WMP Section	IE's Assessment of WMP based on PUC Sec. 8387 Requirements	Responsible Party Revisions	IE's 2nd Assessment of WMP
(A): An accounting of the responsibilities of persons responsible for executing the plan.	Sec. 3.A Utility Governance Structure. Generation Services Assistant General Manager.	Needs clarification of responsibilities. While the organizational structure, responsible department and responsible position are identified, it is not clear what the responsible position's responsibilities are for executing the WMP.	NCPA - Complete. Added "and responsible for executing the WMP"	Meets requirements as modified.
(B): The objectives of the wildfire mitigation plan.	Executive Summary and Sec. 1.B. Purpose of the WMP. 2. Goals.	Meets requirements.	NA	Meets requirements.
(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.	Sec. 5.A. Preventative Strategies and Programs. Sec. 5.C. Potential Climate Change Effects. Sec. 5.D. Potential Climate Change Risk Management Impacts.	Add description of programs. Reference is made to the line maintenance program. No definitive description is provided for the proposed programs.	NCPA - Complete. Revised NCPA's (1) facility maintenance program, (2) emergency operating procedures, (3) vegetation management programs, and (4) asset documentation programs.	Meets requirements as modified.
(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.	Sec. 7.A. Metrics and Assumptions for Measuring Plan Performance.	Meets requirements.	NA	Meets requirements.

WMP Required Element per PUC Sec 8387(b)(2)	NCPA WMP Section	IE's Assessment of WMP based on PUC Sec. 8387 Requirements	Responsible Party Revisions	IE's 2nd Assessment of WMP
(E): A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.	Sec. 7.B. Impact of Metrics on Plan.	Include discussion of application of previous metrics. No reference is included regarding the impacts on the WMP from past metrics.	NCPA - Complete. Added "2020 WMP Impact Due to Metrics" along with establishing metric summaries to review.	Meets requirements as modified.
(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.	Sec. 5.I. Reclosing Policy. Sec. 5.J. De-Energization. Sec. 5.J.1. Impacts to Public Safety.	Enhance section to clarify role as wholesaler vs. retailer. Reclosers are not employed. Impacts to Public Safety is addressed; any impacts would be addressed by providers of PSPS. Any de-energization is coordinated with Cal Fire and PG&E.	NCPA - Complete. Changed "employ" to "own."	Meets requirements as modified.
(G): Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing 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 deenergization for a given event.	Sec. 5.J.2. Customer Notification Protocols.	Enhance section to clarify role as wholesaler vs. retailer. As a wholesale provider NCPA has no retail customers; any impacts would be addressed by providers of PSPS.	NCPA - Complete. Added wholesaler vs retailer clarification.	Meets requirements as modified.
(H): Plans for vegetation management.	Sec. 5.F. Vegetation Management.	Meets requirements.	NA	Meets requirements.

WMP Required Element per PUC Sec 8387(b)(2)	NCPA WMP Section	IE's Assessment of WMP based on PUC Sec. 8387 Requirements	Responsible Party Revisions	IE's 2nd Assessment of WMP
(I): Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.	Sec. 5.G. Inspections.	Meets requirements.	NA	Meets requirements.
(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.	Sec. 4. Wildfire Risks and Drivers. Sec. 4.A. Risks Associated with Topographical and Climatological Factors.	Add list of risks and risk drivers related to design, construction, operation and maintenance; they currently are not addressed.	NCPA - Complete. Clarified 4.B. are Risks and risk drivers related to design, construction, operation and maintenance that could create fire ignition sources.	Meets requirements as modified.

WMP Required Element per PUC Sec 8387(b)(2)	NCPA WMP Section	IE's Assessment of WMP based on PUC Sec. 8387 Requirements	Responsible Party Revisions	IE's 2nd Assessment of WMP
(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.		Not addressed. Rather than referring solely to the High Fire-Threat District, include description of the local geography, any specific areas of concern and identification of any changes to be made.	NCPA - Complete. Addressed in 4.c. "NCPA has reviewed current CAL FIRE hazard severity zone and CPUC fire-threat maps with respect to agency facilities, as shown in Appendix 1. These maps have not been adjusted since the noted publication dates nor have any local agencies imposed any expansions to the maps."	Meets requirements as modified.
(L): A methodology for identifying and presenting enterprise-wide safety risk and wildfire-related risk.	Sec. 4.B. Enterprise-wide Safety Risks.	Meets requirements.	NA	Meets requirements.
(M): A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.	Sec. 7. Restoration of Service.	Needs clarification and details. Statement is very limited with no details, only that restoration will occur in coordination with PG&E and GO-646 procedures. The section should be enhanced to include details on PG&Es restoration efforts and the GO-646 procedure.	NCPA - Complete. Revised this plan to include the statement NCPA will follow PM-201 and Geothermal Facilities Maintenance Procedure (GO-646) specifically address restoration for Hydro and Geothermal facilities respectively. These procedures contain the steps that must be taken to restore such as inspecting, repairing, testing, and finally restoring.	Meets requirements as modified.

WMP Required Element per PUC Sec 8387(b)(2)	NCPA WMP Section	IE's Assessment of WMP based on PUC Sec. 8387 Requirements	Responsible Party Revisions	IE's 2nd Assessment of WMP
(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.	Sec. 7.C. Monitoring and Auditing the Plan. Sec. 7.D. Identifying and Correcting Deficiencies in the Plan. Sec. 7.E. Monitoring the Effectiveness of Inspections.	The section should be enhanced to include details on how the monitoring will occur throughout the year. It is not clear how deficiencies are identified. Clarification is needed whether or not the proposed effectiveness inspection methods are actually taking place, and if so, by whom.	NCPA - Complete. Added yearly metrics summary including impact to the plan from the metrics summary.	Meets requirements as modified.

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
1. Plan Structure – risk profile				
a) The WMP and Independent Evaluator Reports should be prominently displayed and easily located on the POU websites.	NA	Reports are displayed on POU website.	NCPA - Complete. http://www.ncpa.com/bidding-opportunities-and-public-notifications/environmental-documents/	Meets WSAB recommendation.
b) Include an index or table that shows where each section of the statute is addressed in the WMP.	Not included.	Include the statute compliance spreadsheet developed by Dudek as Appendix.	Dudek	Meets WSAB recommendation.
c) Include context-setting information at the beginning of each POU plan about each POU's risk profile in accordance with the statutory requirements Public Utilities Code Section 8387(b)(2)	Not included.	Prepare the requested context-setting information and include in Section 1.	NCPA - Complete. Added "NCPA is a Joint Powers Agency, which owns and operates electrical generation. The scope of this plan applies the Geothermal Facility and the Hydro Facility that are located in two different geological areas. These two facilities contain electrical equipment in high fire threat locations. The Geothermal Plant is located around the Geyser territory in Lake County and the Hydro Electric Facility is located in around North Fork Stanislaus."	Meets WSAB recommendation.

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
d) Apply the Board developed template for review of POU WMPs	Not included.	Prepare the requested template and include in Section 1 (attached below).	NCPA. Complete created new table section 1.	Meets WSAB recommendation.
2. Plan Structure – approval process				
a) Provide a paragraph describing the public review process of the plan and how it is approved, if required	Not included.	Prepare the requested paragraph and include in Section 1.	NCPA. Completed. Added to the purpose of the plan to help fill in the overall story. Very ending paragraph to the appending process. "In 2020, This WMP was presented and recorded at a public Brown Act Meeting and is posted on a public website domain..."	Meets WSAB recommendation.
b) Include additional data on monitoring and auditing and how that information is presented	Not included.	Prepare the requested additional data regarding how the information is presented and include in Section 7.C.	NCPA. Complete. Revised to "This WMP is presented to the NCPA Commission on an annual basis along with metrics and a summary of updates."	Meets WSAB recommendation.

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
c) Provide a brief explanation on each funding mechanism to be used to perform wildfire mitigation	Not included.	Prepare the requested explanation for each wildfire mitigation funding mechanism and include in the respective section (i.e., 3.B., 3.C., 5.A., 5.F, 5.G, 5.H).	NCPA - Complete. The following statement applies to all funding authority "NCPA is governed by a Commission comprised of one representative for each member. The Commission is responsible for the general management of the affairs, property, and business of the Agency. Under the direction of the General Manager, the staff of the Agency is responsible for providing various administrative, operating and planning services for the Agency. This establishes all funding and is applied to all wildfire funding mechanisms in this plan (i.e., 3.B., 3.C., 5.A., 5.F, 5.G, 5.H)."	Meets WSAB recommendation.
3. Plan Structure – independent evaluations				
a) IEs should perform a robust evaluation of the contents and substance of the POUs WMP	NA	Dudek to perform the requested evaluation.	Dudek	Meets WSAB recommendation.
b) Include evaluations of how each POU compares to the IE's assessment of industry standards	NA	Dudek to perform the requested evaluation.	Dudek	Meets WSAB recommendation.
4. Plan structure – Utility groupings				

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
a) 2021 POU WMPs and/or updates should be based on the guidelines		WMP to be updated in accordance with the recommended guidelines.	NCPA - Complete. This evaluation serves as a WMP updated based on Dudek's and WSAB recommendations.	Meets WSAB recommendation.
b) The industry should create a revised template that reflects the learnings from the 2020 initial effort	NA	NA	NA	NA
5. Customer Impacts – PSPS shutoffs				
a) Utilities should provide the context-setting information	Sec. 5.J.2. Customer Notification Protocols	The context-setting information should be enhanced in this section to reference customer impacts as well as customer notification (re-emphasize role as wholesaler vs. retail provider). Consider adding a separate Customer Impacts section.	NCPA - Complete. Revised as "NCPA provides wholesale power to City's and utilities typically known as NCPA members. Since NCPA does not have retail customers, like commercial or private residences, no customer notification protocols are in place."	Meets WSAB recommendation.
b) Include a detailed protocol to address these concerns to understand the strategic direction and effectiveness of each POU	Sec. 5.J.2. Customer Notification Protocols	See 5.a) above.	NCPA - Complete. Revised as "NCPA provides wholesale power to City's and utilities typically known as NCPA members. Since NCPA does not have retail customers, like commercial or private residences, no customer notification protocols are in place."	Meets WSAB recommendation.
6. Customer impacts – communication plans				

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
a) Describe the specific methods, content, and timing used to communicate with customers	Sec. 5.J.2. Customer Notification Protocols	The communication information should be enhanced in this section to reflect the context-setting information requested as noted above in 5.a).	NCPA - Complete. Revised as "NCPA provides wholesale power to City's and utilities typically known as NCPA members. Since NCPA does not have retail customers, like commercial or private residences, no customer notification protocols are in place."	Meets WSAB recommendation.
b) Provide an evaluation of whether the current method of emergency communication appears sufficient and, if not, what can be done to improve it, especially protocols for notifying customers, essential service providers, and other critical facilities of IOU or self-triggered PSPS events	Sec. 5.J.2. Customer Notification Protocols	See 5.a) above.	NCPA & Dudek - Complete. "Complete. Revised as "NCPA provides wholesale power to City's and utilities typically known as NCPA members. Since NCPA does not have retail customers, like commercial or private residences, no customer notification protocols are in place."	Meets WSAB recommendation.
7. The Grid – hardening				
a) Provide information on existing and planned system upgrades	Sec. 2.B. Resiliency of the Electric Grid	Enhance this section to provide specific examples of upgrades as requested.	NCPA - Complete. NCPA is a relatively smaller utility with a small asset count. The list is updated and on 5.A. (1)	Meets WSAB recommendation.
b) Provide details of each utility's system hardening and grid design programs described in the WMP filing	Sec. 2.A. Minimizing Sources of Ignition	Enhance this section to provide details of programs as requested.	NCPA - Complete. Organized programs and procedures 5.A.	Meets WSAB recommendation.

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
c) Indicate the goals of the programs and the risk any particular program is designed to mitigate	Sec. 2 Goals	Enhance this section to show nexus between goals, programs and mitigation as requested.	NCPA - Complete. Revised and organized programs and procedure in Section 5.	Meets WSAB recommendation.
d) Provide the approach to PSPS mitigation and prevention	Sec. 3.C. Wildfire Response and Recovery; Sec. 5.J.1. Impacts to Public Safety; Sec. 5.J.2. Customer Notification Protocols	The PSPS information should be enhanced to reference mitigation and prevention as requested (re-emphasize role as wholesaler vs. retail provider). Consider adding a separate "PSPS" section.	NCPA - Complete. Added NCPA's wholesaler information to first paragraph for clarification.	Meets WSAB recommendation.
e) Identify any supply shortages	NA	Identify any supply shortages as requested. See 7.d) above.	NCPA - Complete. Updates to include "no supply shortages" in relation to PSPS.	Meets WSAB recommendation.
8. The Grid – inspections				
a) Describe the unique risks a utility is inspecting for, such as insect, wildfire incursion, wood split, woodpeckers, purposeful insulator destruction, termites, etc., to be included in the WMP	Sec. 5.G. Inspections	Enhance this section to describe the unique risks as requested.	NCPA - Complete. Added "Section 4.B. of this WMP outlines the unique risks NCPA inspects for. "	Meets WSAB recommendation.
b) Describe whether and how system inspections lead to system improvements	Sec. 5.G. Inspections	Enhance this section to describe the resulting system improvements as requested.	NCPA - Complete. Added "NCPA's asset management system also allows these improvements to be evaluated as observations and comments are made when work orders for	Meets WSAB recommendation.

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
			maintenance items are executed."	
9. The Grid – risks				
a) Consider different options for surfacing, for further consideration and remediation, previously unidentified risks that could lead to catastrophic wildfires	Sec. 4 Wildfire Risks and Drivers	Enhance this section to describe the different options considered as requested.	NCPA - Updated Section 5.A. (1) to add "NCPA's aggressive approach to reduce transmission tie-line risk by completely upgrading insulators on this asset, NCPA's longest line, of 40 Miles. This project was considered a major cost in capital and prioritized for wildfire prevention."	Meets WSAB recommendation.
10. Risk assessment – construction				
a) State the particular wildfire risks associated with system design and construction such as topography and location near a HFTD of another utility	Not included. Wildfire risks are identified in Sec. 4.A., but there is no reference to design and construction.	Include risks associated with design and construction as requested.	NCPA - Complete. Added "There are no new wildfire risks associated to design and construction of new assets. NCPA is currently Operating and Maintain original generating facilities. No new construction in the immediate future."	Meets WSAB recommendation.

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
b) Provide information about G.O. 95 exempt assets, and possible updates to G.O. 95, that could facilitate more resilient utility transmission and distribution assets	Not included.	Include information about exempt assets and updates as requested, possibly in Sec. 2. B.	NCPA - Complete. Leave as stated in Section 5.E.. "NCPA meets: (1) Public Resources Code section 4292; (2) Public Resources Code section 4293; (3) General Order 95 Rule 35; and (4) General Order 95 Appendix E Guidelines to Rule 35."	Meets WSAB recommendation.
11. Risk assessment – situational awareness				
a) Include context setting information in the WMPs including information about the prevailing wind directions and speeds, differentiated by season, along with average weather conditions by season	Sec. 4.A. Risks Associated with Topographical and Climatological Factors.	Enhance this section with context setting information as requested, including the detailed wind information.	NCPA - Complete. "Prevailing Winds: Using live data, NCPA monitors prevailing winds directions and speeds, differentiated by season, along with average weather conditions by season using NCPA real-time observations noting disturbing local weather. Live data is used with the fire maps located in Appendix 1. PG&E's Weather Awareness website is a resource for real-time conditions: https://www.pge.com/en_US/safety/emergency-preparedness/natural-disaster/wildfires/psps-weather-	Meets WSAB recommendation.

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
			map.page?WT.mc_id=Vanity_weather"	
b) Include information on how and why situational awareness technology is installed, and where on the system	Sec. 5.A. Preventative Strategies and Programs.	Enhance this section with information on technology installation as requested.	NCPA - Complete. Added for clarity. "This information is used in communication and aids to analyze wildfire situations."	Meets WSAB recommendation.
c) Provide insight into decisions that are made not to install situational awareness technology	Sec. 5.A. Preventative Strategies and Programs.	See 11.c) above.	NCPA	Meets WSAB recommendation.
d) Are there constraints such as budgets, availability of equipment, knowledge to effectively deploy, or qualified personnel to install and monitor effectively?	Sec. 5.A. Preventative Strategies and Programs.	Enhance this section to address the constraints listed as requested.	NCPA - Complete. Added to 5.A. "There are no constraints such as budgets, availability of equipment, knowledge to effectively deploy, or qualified personnel to install and monitor effectively."	Meets WSAB recommendation.
e) Provide information about whether this modeling data is received from or	Sec. 5.A. Preventative	Enhance this section to provide information regarding modeling data as requested.	NCPA - Complete. Data source is shared and comes from PGE.	Meets WSAB recommendation.

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
shared with other agencies, utilities, or fire professionals	Strategies and Programs.			
12. Vegetation Management – utility requirements				
a) Describe treatment plans for all types of vegetation associated with utility infrastructure, from the ground to the sky, which includes vegetation above and below electrical lines	Sec. 5.F. Vegetation Management	Enhance this section to describe the treatment plans as requested (reference is made to the TVMP - provide details).	NCPA - Added clarity that section 5.E. is "NCPA's plan for all types of vegetation associated with utility infrastructure, from the ground to the sky, which includes vegetation above and below electrical lines. "	Meets WSAB recommendation.
13. Vegetation management – personnel qualifications				
a) List the qualifications of any experts relied upon, such as scientific experts in ecology, fire ecology, fire behavior, geology, and meteorology	Sec. 5.F. Vegetation Management	Enhance this section to list the qualifications as requested.	NCPA - Complete added to section 5.E. "NCPA uses a combination of its own staff (manager, supervisor or competent designee) and the retention of qualified consultants (such as scientific experts in ecology, fire ecology, fire behavior, geology, and meteorology) with experience in line design, line construction, NERC Standards compliance, and vegetation management to develop and maintain the TVMP."	Meets WSAB recommendation.

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
b) Specify the level of expertise of the POU staff that manages the contractors performing vegetation management	Sec. 5.F. Vegetation Management	Enhance this section to specify the level of expertise as requested.	NCPA - Complete. "NCPA uses a combination of its own staff (manager, supervisor or competent designee) and the retention of qualified consultants (such as scientific experts in ecology, fire ecology, fire behavior, geology, and meteorology) with experience in line design, line construction, NERC Standards compliance, and vegetation management to develop and maintain the TVMP."	Meets WSAB recommendation.
c) Describe measures taken to ensure that POU staff and contractors comply with or verify compliance with Cal/OSHA standards on Minimum Approach Distances (MAD)	Sec. 5.F. Vegetation Management	Enhance this section to describe the measures as requested.	NCPA - Complete. The TVMP specifies technical requirements for staff and contractors to comply with or verify compliance with Cal/OSHA standards and NCPA Electrical Safety Procedure GS-103 ensures Cal/Osha and Minimum Approach Distances (MAD).	Meets WSAB recommendation.
14. Vegetation management - innovation				

WSAB 2020 WMP Guidance Recommendations	NCPA WMP section	IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	IE's 2nd Assessment of WMP
a) Describe whether the POU has considered innovative and alternative approaches to vegetation management such as, but not limited to, requiring property owners to manage vegetation a certain distance from structures or utility lines, and pilot programs in home hardening	Sec. 5.F. Vegetation Management	Enhance this section to describe the approaches considered as requested.	NCPA - No innovative ideas to note.	Meets WSAB recommendation.

APPENDIX 4 – INDEPENDENT EVALUATOR REPORT 2022

DUDEK
1630 SAN PABLO AVENUE, SUITE 300
OAKLAND, CALIFORNIA 94612
T 510.601.2500 F 510.601.2501

April 14, 2022 12108.07

Mr. Jeremy Lawson
Northern California Power Agency
651 Commerce Drive
Roseville, CA 95678

Subject: Independent Evaluation Report of Northern California Power Agency's 2022 Wildfire Mitigation Plan

1 Introduction

The Northern California Power Agency (NCPA) contracted with Dudek to engage in an independent evaluation of its Wildfire Mitigation Plan (WMP). This independent evaluation report (Report) describes the technical review and evaluation of the WMP prepared by Dudek, performed in February through April2022, and completed on April 14, 2022.

Dudek conducted an evaluation of NCPA's WMP, as required under California Public Utilities Code (PUC) §8387(b). PUC §8387(b), as modified by Senate Bill (SB) 901, and the Administrative Law Judge's Ruling issued on January 17, 2019 in California Public Utilities Commission (CPUC) Docket No. R.18-10-007 (ALJ Ruling), applies to publicly owned electric utilities and required preparation of a WMP before January 1, 2020, and revising/updating the WMP in 2020 and annually thereafter.

The WMP requirements are codified in PUC §8387(b)(2) for local publicly owned electric utilities (POUs). PUC §8387(c) requires that an independent evaluator review and assess the comprehensiveness of a POU's WMP and issue a summary report.

Dudek conducted an initial review of NCPA's WMP (version 1.3) and provided recommendations for clarifications/modifications on March 3, 2022. The focus of the evaluation was to determine whether the WMP included all elements required under PUC §8387(b)(2) (listed in Attachment A). The evaluation determined that the NCPA's 2022 Wildfire Mitigation Plan does include all the PUC §8387(b)(2) requirements.

In addition to evaluating the elements required by the Public Utility Code, Dudek evaluated the WMP for compliance with the Wildfire Safety Advisory Board (WSAB) Publicly Owned Utilities (POUs) WMP guidance recommendations and to address any deficiencies in the WSAB review of the 2022 WMP that was published on their website. Dudek worked NCPA staff to revise the WMP to meet the recommendations of the Guidance Advisory Opinion for 2022 WMPs that are relevant to the NCPA's service territory (See Attachment B for Compliance Matrix). This included more detailed explanations of the wildfire risks in the utility's service territory and the wildfire prevention programs that are designed to address these risks.

2 Wildfire Mitigation Plan Requirements

A. Senate Bill 901

Per Senate Bill (SB) 901, all Publicly Owned Utilities are required to adopt a Wildfire Mitigation Plan (WMP), which shall be reviewed by an independent third-party evaluator. SB 901 requires the governing board to determine whether any portion of the geographical area where the utility's overhead electrical lines and equipment are located has a significant risk of catastrophic wildfire resulting from those electrical lines and equipment. The bill directs electrical utilities to annually prepare WMPs 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 WMP before January 1, 2020. The requirements for POUs are presented in PUC §8387. In addition, the WMP shall be reviewed by an approved, independent, third-party evaluator to review and assess the comprehensiveness of, and the POU's compliance with, this Plan.

B. AB 1054 & AB 111

Per Assembly Bill (AB) 1054, POUs must annually submit a WMP to the California Wildfire Safety Advisory Board, which will review the WMP and provide recommendations on mitigating wildfire risk. AB 1054 contains similar WMP requirements to SB 901 but allows WMPs of a three-year, rather than one-year duration.
AB 111 establishes the Wildfire Safety Division within the Public Utilities Commission.

C. Northern California Power Agency WMP Requirements

PUC §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 NCPA's WMP are included in Table A (see Attachment A) and are summarized here for reference.

- The responsibilities of persons responsible for executing the plan.
- The objectives of the wildfire mitigation plan.
- The preventive strategies and programs to be adopted to minimize the risk of its electrical lines and equipment causing catastrophic wildfires.
- The metrics to use to evaluate the wildfire mitigation plan's performance.
- How the application of previously identified metrics has informed the wildfire mitigation plan.
- Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts.
- Procedures for notifying a customer who may be impacted by the deenergizing of electrical lines.
- Plans for vegetation management.
- Plans for inspections of the electrical infrastructure.
- Description of wildfire risks, and drivers for those risks, throughout the service territory,
- Identification of any geographic area in the service territory that is a higher wildfire threat than is identified in a commission fire threat map.
- Identification of enterprise-wide safety risk and wildfire-related risks.
- How the service will be restored after a wildfire.
- The processes and procedures used to monitor and audit the implementation of the wildfire mitigation plan, identify any deficiencies, and the effectiveness of electrical line and equipment inspections.

3 Description of the Northern California Power Agency

NCPA is a Joint Powers Agency, which owns and operates electrical generation facilities. NCPA is governed by a Commission comprised of one representative for each of its public power utility members.

The WMP applies to the NCPA's geothermal facility and a hydro facility plus transmission and distribution lines. These two facilities contain electrical equipment in high fire threat locations and power lines that traverse high fire threat areas. The geothermal facility is located around the Geyser territory in Lake County and consists of five geothermal facilities spread over 30 square miles. The Hydro Electric facility is in the North Fork Stanislaus River watershed (Calaveras County) and consists of eight generator/water diversion stations and an office located along the river. There are approximately 40 miles of power lines between the generation facilities and their tie-in points with PG&E transmission wires. NCPA electrical infrastructure consists of facilities that are in Moderate to Very High Fire Hazard Severity Zones (CAL FIRE) and/or Tier 2/3 CPUC Fire Threat Zones.

NCPA has taken appropriate actions to help prevent and respond to the increasing risk of devastating wildfires by following all applicable design, construction, operation, and maintenance requirements that reduce safety risks associated with its electric system.

4 Independent Evaluation

A. Independent Evaluator Requirement

PUC §8387 requires each POU to "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." Additionally, the independent evaluator's assessment of the comprehensiveness of the POU's WMP must be issued in a report that is both posted to the POU's website and presented at a public meeting of the POU's governing board.

B. Dudek's Qualifications

According to PUC §8387(c), the qualified independent evaluator that performs the assessment of NCPA's WMP must have "experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of its wildfire mitigation plan." NCPA has determined that Dudek is the independent evaluator who adequately understands the local conditions and fire risks of the service area.

C. Evaluation Methodology

Dudek evaluated the comprehensiveness of the NCPA's 2022 WMP on the following measures:

- Statutory Compliance: Dudek ensured that each required element specified in PUC §8387 is either addressed in NCPA's WMP or that NCPA has sufficiently described why that element is not applicable due to NCPA's size, geography, system, or other relevant factor.
- Fulfillment of Wildfire Safety Advisory Board Guidance: Dudek reviewed WSAB guidance publications for Publicly Owned Utilities for recommendations that were relevant to the NCPA's WMP and then compared the Board's recommendation to the content of the WMP.

- Industry Comparison: While the NCPA differs from many nearby utilities in that they provide power to other utility agencies and not consumers, they do use similar equipment and operational procedures as nearby POUs that serve consumers. Dudek compared the elements of the NCPA's WMP, their operations, and the equipment to those used by of other agencies to minimize wildfire ignition and spread. Where there was no other agency(s) to compare to (e.g., geothermal plants), Dudek used industry standards.

D. Metrics

The NCPA's Wildfire Mitigation Plan uses the following metrics to measure performance of its wildfire mitigation measures: (1) number of fire ignitions, and (2) wires down events. Dudek has determined that these are appropriate metrics for this WMP and that the WSAB has concluded that these two metrics, are generally acceptable metrics for a WMP.
Dudek recommended that the NCPA consider adding a new metric or revising one of the current metrics to integrate a metric that shows the actions NCPA is taking in their service territory to reduce wildfire ignition risk. NCPA staff acted on Dudek's recommendation. evaluating their current operations and their service territory for other useful indicators of wildfire risk, Fire weakened trees and slopes are hazard to NCPA's transmission wires where they pass through fire scars. NCPA is incorporating a third metric into their WMP that measures fall in trees, trees of height sufficient to represent a contact hazard to the Distribution Line if destabilized due to soil instability at the tree base,

5 Evaluation of the Northern California Power Agency Wildfire Mitigation Plan

A. Minimizing Wildfire Risks

PUC §8387(a) requires the following: "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."
The WMP describes the safety-related measures that NCPA follows to reduce its risk of causing wildfires. Dudek has determined that NCPA complies with this standard through the design of its system and the construction of its equipment and resources.

B. Evaluation of WMP Elements

Dudek found that NCPA's WMP meets the statutory requirements of comprehensiveness per PUC §8387. The review of the WMP's elements is summarized relative to the application of the WMP. The table in Attachment A lists each required element for NCPA's WMP and provides Dudek's assessment of the comprehensiveness of that element within the WMP.

Below is a summary of the WMP elements as required by PUC §8387, including restating sections of the WMP where applicable.

8387(b)(2)(A): Responsibilities of Persons Responsible for Executing the Plan.

Under the direction of the Assistant General Manager for Generation Services, the plant managers are responsible for implementation and execution of the WMP with respect to their facilities. The NCPA dispatch center in Roseville has responsibility for the generator tie-in lines.

8387(b)(2)(B): Objectives of the Wildfire Mitigation Plan

The objectives of the WMP are to: minimize the probability that NCPA's system is the origin or contributing source for a wildfire ignition, improve the resiliency of the electric grid, specifically to reduce the likelihood of an interruption of service and an improvement in the restoration of service after an interruption, and to improve the effectiveness of their wildfire prevention strategies by modifying or replacing elements of their wildfire prevention program that are ineffective

8387(b)(2)(C): Prevention Strategies and Programs

NCPA's strategies to reduce wildfire risk include continuous evaluation and improvement of its programs and procedures: including NCPA's (1) facility maintenance program, (2) emergency operating procedures, (3) vegetation management programs, and (4) asset documentation programs. These programs include all details such as goals, objective, or percentage, monitor ongoing work, accomplishments, internal and external audits, and detailed reports. Additional programs such as coordination with CAL FIRE and wildfire prevention training for NCPA staff complement their core fire prevention programs. Attachment C in the WMP contains a table which describes identified risk drivers within NCPA service territory and preventative strategies implemented by the utility. The table includes controls NCPA has implemented to address each risk or risk driver listed.

8387(b)(2)(D): Metrics and Assumptions for Measuring WMP Performance

The NCPA WMP uses two metrics to measure performance of its wildfire mitigation measures: (1) number of fire ignitions, and (2) wires down events. Dudek has determined that these are appropriate metrics for this WMP.

8387(b)(2)(E): Impact of Previous Metrics on WMP

The metrics show zero incidents and indicate success; no WMP changes due to metrics.

8387(b)(2)(F): Reclosing Protocols

NCPA does not own or use automatic reclosers on its 230 kV within the scope defined in this WMP. This is a typical industry standard for distribution and transmission wires in rugged and remote terrain.

8387(b)(2)(G): De-energization Notification Procedures

In the event of active fire situations, NCPA may be directed by CAL FIRE to de-energize the lines for firefighter and/or aircraft protection. NCPA de-energization notification procedures depend on which lines and facilities are being de-energized. If the Hydro facilities and 230 kV lines are de-energized then NCPA personnel will work with CAL FIRE and their dispatch center in Roseville to notify fire fighters, NCPA facility

staff, PG&E, and NCPA members. For the geothermal facilities relies on PG&E to make the determination whether these facilities and their lines are to be de-energized. NCPA dispatch would communicate PG&E direction to NCPA personnel and NCPA members.

8387(b)(2)(H): Vegetation Management

NCPA has developed and implemented a Transmission Vegetation Management Program (TVMP) to establish the vegetation maintenance requirements for each facility to achieve reliability of its generation interconnection system. The NCPA document defines procedures for vegetation management. NCPA's TVMP is the plan for all types of vegetation associated with utility infrastructure, from the ground to the sky, which includes vegetation above and below electrical lines.

8387(b)(2)(I): Inspections

NCPA performs annual inspections of its transmission and distribution facilities in accordance with General Order 95 and General Order 165. Enhanced inspections are performed on the Collierville-Bellota 230 kV line including lidar vegetation flights, corona scans of insulators, infrared inspections of lines and equipment. In addition to its annual ground-based inspection, NCPA may augment inspections with aerial drone and/or helicopter surveys.

8387(b)(2)(J)(i): Risks and Risk Drivers Associated with Design and Construction Standards

Risks and risk drivers related to design, construction, operation, and maintenance include equipment/structure/facilities, object to wire or equipment contact, wire to wire contact, vehicle operations, vegetation clearing, and hot work. Attachment C in the WMP contains a table which describes identified risk drivers within NCPA service territory and preventative strategies implemented by the utility. The list includes risk drivers and risks related to design and construction standards.

8387(b)(2)(J)(ii): Risks and Risk Drivers Associated with Topographic and Climatological Risk Factors

Risks and risk drivers related to Topographic and Climatological Risk Factors include extended drought, vegetation type, vegetation density, weather, high winds, prevailing winds, terrain, changing weather patterns and communities at risk. Communities at risk is a design and construction standard and it is recommended that it is moved to that section. The plan discussed prevailing wind patterns in the service territory and the impact the winds have on the conductors. Also discussed is the impact that previous large fires in their service territory have on risks associated with topographic and climatological factors. Attachment C in the WMP contains a table which describes identified risk drivers within NCPA service territory and preventative strategies implemented by the utility. The list includes risk drivers and risks related to topographic factors within NCPA's service territory.

8387(b(2))(K): Geographical Area of Higher Wildfire Threat

To identify the areas of NCPA's service territory that are at an elevated or extreme risk of power line-ignited wildfire, NCPA has incorporated the High Fire-Threat District into its construction, inspection, maintenance, repair, and clearance practices, where applicable.

8387(b)(2)(L): Enterprise-wide Safety Risks

NCPA regularly evaluates enterprise safety risks, which include severe operating conditions and contingencies. NCPA also performs regular analysis of risks to improve the ability to manage these risks effectively.

8387(b)(2)(M): Restoration of Service

After a de-energization event, NCPA will restore service in coordination with PG&E's restoration efforts. NCPA will follow PM-201 and Geothermal Facilities Maintenance Procedure (GEO-646) which specifically address restoration for Hydro and Geothermal facilities respectively.

8387(b)(2)(N)(i): Monitoring and Auditing WMP Implementation

The WMP is presented to the NCPA Commission on an annual basis along with the metrics and a summary of updates.

8387(b)(2)(N)(ii): Identifying and correcting WMP deficiencies

NCPA may correct deficiencies and implement plan improvements as needed. Improvements will be documented in the annual report to the NCPA Commission.

8387(b)(2)(N)(iii): Monitoring and Auditing the effectiveness of inspections

NCPA uses General Orders 95 and 165 as guides to inspect its electric supply system. The effectiveness of ground inspections is typically monitored by 'ride-a-longs' performed by NCPA staff and CAL FIRE staff with inspection personnel. Independent professionals are contracted to review lidar data and other inspection data that is collected remotely.

6 Wildfire Safety Advisory Board Recommendations

The Wildfire Safety Advisory Board produces guidance documents for publicly owned utilities annually. These documents describe elements that should be revised or expanded in future WMPs to better organize the plan, clarify where PUC required information can be found, and to provide a more comprehensive description of the utility's wildfire prevention programs. Dudek reviewed the WSAB most recent guidance document and compared contents of the NCPA's 2022 WMP to each recommended element.

1. Plan Structure, Staffing, and Evaluations

A. Context Setting Information: The WSAB recommended that POU's use an upfront table that contains information about the utility including number of customers, the size of its service areas, the service area within a high fire threat area, asset mix, and more. The intent was to provide a reviewer of the plan with a plain and accessible summary of the utility. The WSAB provided a template for this table in 2021. **NCPA's WMP uses the WSAB template and has the completed table in the Overview section of their plan.**

B. General WMP Objectives: Many POU's use two general objectives; 1. Minimizing sources of ignition and 2. Improving the resiliency of the grid. These are valid objectives but the WSAB believes that they may lead

to limited approach by a utility to wildfire prevention. The WSAB recommends that POU's take a broader approach to their objectives and consider objectives that mitigate other risks associated with wildfire such as minimizing wildfire spread. **NCPA's WMP objectives include these two general objectives; however, their WMP does describe wildfire prevention programs that go beyond minimizing new ignitions and hardening their equipment against wildfire. For example, their vegetation management program TVMP inspects and manages surface vegetation near their assets as well as trees near their power lines.**

C. Staff Responsibilities and Approval Protocols: The WSAB requested that future WMPS include additional context information regarding the public input and approval processes for the WMP of each POU. **The WMP contains a description in the Overview section of the NCPA's WMP approval process that begins with a presentation of the WMP to the NCPA Facilities Committee for comment, then is routed for final approval to the NCPA Commission. public meeting and NCPA commission meeting. Past WMP's are available on the NCPA website.**

D. Metric Development and Evaluation: Many POU's use two basic metrics; 1. New ignitions and 2. Wires down. These are valid metrics but the WSAB recommends that POU's consider adding or replacing these metrics with ones that better apply to their service territory and metrics that show progress towards an outcome as opposed to a metric that shows the outcome. **The WMP contains the two-basic metrics, and these are relevant metrics to the NCPA's assets. NCPA is evaluating adding a third metric to evaluate the effectiveness of their plan in reducing the risk posed to their wires by fire weakened trees and slopes. The NCPA does track their two current metrics and the results are published in the WMP.**

2. **Grid Design, System Hardening, Operations and Inspections**:

A. In 2021 the WSAB requested POUs answer several questions about their system design and construction. The questions: 1. Are there design or construction issues related to the utility's specific topography or geographic location that the Board should be aware of? 2.How will the utility address risks associated with facilities requiring power that abut a Tier 2 or Tier 3 HFTD? 3.How does the utility assess its risks associated with system design and construction? 4.In what areas does the utility consider going above and beyond G.O. 95 or other General Order standards related to design and construction? **Chapter 5 Section A of the WMP provides general overview to these four questions, followed by a description of several example programs NCPA has incorporated on their transmission and generation assets.**

B. The WSAB observed that the many POU WMPs state that they meet or exceed the CPUC GO 95 standards for their inspections. The WSAB comment is that the WMPs do not state if the POU are meeting the minimum standards of GO 95 or exceeding it where circumstances merit it. The WSAB is recommending that WMPs include a description of whether their inspection programs go beyond the GO 95 standards, why they do, and how they do. **The NCPA's WMP does not use the statement "meet or exceed" and the plan does describe the inspections it performs on its assets that exceed the requirements of GO 95 including how they exceed the standard. The reasons for the inspections that go beyond the CPUC standards are summarized in the WMP with references to the NCPA documents or policies with more detailed explanations**

C. The WSAB would like POUs to include in their WMPs a description of the new ideas or enhanced protocols the utility is considering in the design, building, and maintaining their system to mitigate the wildfire risk in the future. **The WMP includes descriptions of the ongoing improvements to NCPA assets (upgrading**

equipment on their power lines) and enhancements they are making to their inspection process by upgrading frequency or the scope of inspections or where they are incorporating new techniques, such as using UAVs.

3. **Vegetation Management and Inspections**:

The WSAB requested that POUs describe their vegetation management practices and evaluate their impact on reducing wildfire related risk as well as the ecological impacts of the treatment options chosen. **The NCPA's WMP provides a general description of their vegetation management program and references their TVMP. The TVMP contains a detailed description of the utility's vegetation practices including what types of vegetation are treated, where they treated, and how often. The WMP also describes how their vegetation management standards exceed the GO 95 and which standard they use as their guidelines for their enhanced vegetation management program (CAL FIRE Power Line Fire Prevention Field Guide).**

7 Comparison of Industry Standards to the Operations and Equipment in use by the Northern California Power Agency

Dudek compared operational procedures and equipment used by the NCPA to mitigate wildfire risk in their service territory with mitigation measures in approved Wildfire Mitigation Plans from a similar utilities and electrical industry standards.

Avian Deterrents

The NCPA has installed avian deterrents and anti-nesting cones on its 230 kV Collierville-Bellota line, a 40-mile-long transmission line that traverses remote and mountainous terrain. Large birds are a common hazard for power line poles and towers, installing these devices on the towers along this line prevents large birds from using the towers as perches and nesting sites. This is a typical industry practice and a CALFIRE recommended practice to prevent equipment failure and wildfire ignitions due to electrocuted birds or the accumulation of bird droppings on electrical equipment.

Insulator Replacement

The NCPA has upgraded the insulators on its 230 kV Collierville-Bellota line, a 40-mile-long transmission line that traverses remote and mountainous terrain. The line is over 30 years old, and the insulators were replaced as part of a larger program to improve the safety and reliability of the line. This is a typical industry practice and replacing aging insulators reduces the risk of equipment failure, flash-over or arcing, or electrical current discharging into the ground through the pole.

Conductor Damping

The NCPA has installed mass dampers on its 230 kV Collierville-Bellota line, a 40-mile-long transmission line that traverses remote and mountainous terrain. Conductor damping is a typical industry practice to minimize wear or conductor fatigue near the hardware attachments. While this upgrade is not specific to preventing wildfire ignition it does reduce the risk of conductor or equipment failure, an event which could ignite a wildfire.

Disabling Reclosing Operations

The NCPA does not use automatic reclosers on its 230kV transmission line due to its location in rugged and remote terrain. This is a typical industry practice for both life safety and fire hazard reasons. In place of an automatic reclosers, NCPA coordinates re-energization of a tripped line with their dispatch office in Roseville, NCPA generation services, and PG&E. Lines are not re-energized until they have been visually inspected.

8 Conclusion

Dudek concludes that the Northern California Power Agency Wildfire Mitigation Plan comprehensively addresses all the applicable statutorily required elements for a Publicly Owned Utilities' WMP as specified in California Public Utilities Code Section 8387. Dudek finds that NCPA has taken reasonable actions to minimize the risk that its lines or equipment will cause a wildfire. Finally, Dudek finds that the NCPA has reviewed the guidance documentation provided by the WSAB and is incorporating recommended improvements to their WMP and their wildfire prevention programs.

Sincerely,

Jeremy Cawn
Fire Protection Planner/Urban Forestry Specialist

Attachment A: CPUC 8387(b)(2) Requirement Chart

2022 WMP Required Element per PUC Sec 8387(b)(2)	2022 NCPA WMP section	IE's Assessment of WMP based on PUC Sec. 8387 Requirements	Responsible Party Revisions
(A): An accounting of the **responsibilities of persons responsible** for executing the plan.	Sec. 3.A Utility Governance Structure. Generation Services Assistant General Manager.	**Acceptable**	
(B): The **objectives** of the wildfire mitigation plan.	Executive Summary and Sec. 1.B. Purpose of the WMP. 2. Goals.	**Acceptable**	
(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.	Sec. 5.A. Preventative Strategies and Programs. Sec. 5.C. Potential Climate Change Effects. Sec. 5.D. Potential Climate Change Risk Management Impacts.	**Acceptable. Section 5 provides a comprehensive overview of the different wildfire prevention programs.**	**Section 5A.** Any changes or updates to the maintenance projects and programs? Moved from 2021 to 2023 due to PGE... **Section 5F.** Any aerial drone or helicopter surveys worth noting? Geothermal Drone. NCPA works with Cal Fire to manage and phase maintenance work to the line.
(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.	Sec. 7.A. Metrics and Assumptions for Measuring Plan Performance.	**Acceptable**	NCPA Update: Metrics reflect up to date. Good performance.
(E): A discussion of how the application of **previously identified metrics** to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.	Sec. 7.B. Impact of Metrics on Plan.	**Acceptable. Consider selecting a new metric that measures an element that could lead to a wildfire ignition, such as trees without adequate clearance or equipment malfunctions detected.**	**NCPA has implemented enhanced inspection processes for its distribution lines that include identification of hazard trees that although outside of the normal radius of VMP clearing, still may represent a fall in hazard to wildfire ignition if toppled. NCPA has added this metric to both the WMP and to the VMP.**

2022			
2022 WMP Required Element per PUC Sec 8387(b)(2)	2022 NCPA WMP section	IE's Assessment of WMP based on PUC Sec. 8387 Requirements	Responsible Party Revisions
(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.	Sec. 5.I. Reclosing Policy. Sec. 5.J. De-Energization. Sec. 5.J.1. Impacts to Public Safety.	**Acceptable**	
(G): Appropriate and feasible **procedures for notifying a customer** who may be impacted by the deenergizing 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.	Sec. 5.J.2. Customer Notification Protocols.	**Acceptable.**	
(H): Plans for **vegetation management**.	Sec. 5.F. Vegetation Management.	Section 5E. Any changes or updates to the Generation Services Common Procedure GS-305? Link. **Acceptable. The WMP does a good job at describing general Veg Mgmt. The TVMP plan provides most of the required details to meet this sections requirements, consider adding elements of the TVMP to the WMP**	NCPA added the following to Section 5.F: "Specific hazards addressed in the TVMP include identification of encroachment into the Clearance area (section 6.3.7), and additional inspection activities to identify deadfall and brush in the ROW that could provide fuel for wildfire spread (section 6.3.9). The TVMP also provides explicit direction to treat emergent conditions of a potential hazard as an immediate mitigation priority (section 6.4.4), including addressing extent of condition."
(I): Plans for **inspections** of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.	Sec. 5.G. Inspections.	**Acceptable. The WMP does a good job of describing general inspection process. Details regarding the types of**	

2022 WMP Required Element per PUC Sec 8387(b)(2)	2022 NCPA WMP section	IE's Assessment of WMP based on PUC Sec. 8387 Requirements	Responsible Party Revisions
		inspections performed and when they are performed would be beneficial.	
(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.	Sec. 4. Wildfire Risks and Drivers. Sec. 4.A. Risks Associated with Topographical and Climatological Factors.	**Acceptable. The WMP does a good job of describing general risks to the service territory both climate and terrain as well as operational and equipment. The risks specific to NCPA service territory are not described and it would be beneficial to add some NCPA specific risk drivers**	**NCPA has added to Section 4.A: "Risks specific to NCPA's generation facilities are tied to both residual fuel load (snags) from previous fires and potential soil instability caused by previous damage to area vegetation. These hazards are addressed by enhanced inspection techniques described in Section 5.F".**
(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.	Sec. 4.C. Changes to CPUC Fire Threat Map	**Acceptable**	
(L): A **methodology for identifying and presenting enterprise wide safety risk** and wildfire-related risk.	Sec. 4.B. Enterprise-wide Safety Risks.	**Acceptable. Consider creating a section in the WMP that collects the enterprise wide safety elements described throughout the plan.**	**Attachment C has been added to provide an index of risks and their associated controls evaluations within the sections of the WMP.**
(M): A statement of **how the local publicly owned electric utility or electrical cooperative will restore service** after a wildfire.	Sec. 7. Restoration of Service.	**Acceptable**	

2022			
2022 WMP Required Element per PUC Sec 8387(b)(2)	**2022 NCPA WMP section**	**IE's Assessment of WMP based on PUC Sec. 8387 Requirements**	**Responsible Party Revisions**
(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.	Sec. 7.C. Monitoring and Auditing the Plan. Sec. 7.D. Identifying and Correcting Deficiencies in the Plan. Sec. 7.E. Monitoring the Effectiveness of Inspections.	**Acceptable**	Updated: NCPA currently conducts ride-alongs with both Cal-Fire staff and internal NCPA staff.

DUDEK
1630 SAN PABLO AVENUE, SUITE 300
OAKLAND, CALIFORNIA 94612
T 510.601.2500 F 510.601.2501

Attachment B: WSAB Guidance Recommendations Chart

WSAB 2022 WMP Guidance Recommendations	2022 NCPA WMP section	2022 IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	2022 IE's 2nd Assessment of WMP
the Board recommended use of an upfront template containing key information about a utility's service area, including size, number of customers, type of customers, basic topography and weather data, asset mix (in terms of underground versus overhead lines), and interaction with High Fire Threat Districts (HFTD) and Public Safety Power Shutoffs (PSPS).	Section 1	Fully completed.	n/a	**Complete**
An index that showed where each of the statutory requirements were addressed in the WMP	N/A	Add index table to WMP in suggested location	See Attachment A	**Complete**
The WSAB is encouraging POU's to revaluate their WMP objectives to take a broader approach beyond the typical minimizing sources of ignition and improving resiliency of the grid.	N/A	The NCPA's describes the typical objectives of minimizing ignitions and improving resiliency of the grid in their WMP.	See Attachment B	**Complete**
Describe the vegetation management practices and evaluate their impact on reducing wildfire related risk, as well as the ecological impact of the treatment options chosen	Section 5	The WMP provides a general overview of the NCPA's program. The details the WSAB is looking for are found in the TVMP plan.	See Attachment B	**Complete**

WSAB 2022 WMP Guidance Recommendations	2022 NCPA WMP section	2022 IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	2022 IE's 2nd Assessment of WMP
Information about the installation of and use of situational awareness technologies to better understand wildfire risk drivers, particularly through collaborative activities and shared data.	N/A	There is no description in the WMP about the installation or use situational awareness technology in NCPA's service territory.	See Attachment B	**Complete**
Information about facilities that would not be directly subject to the protocols of the CPUC's G.O. 95 due to their construction prior to the G.O. first being adopted.	Section 5	The WMP does not specifically identify facilities that are not subject to GO 95. NCPA applies wildfire prevention strategies to all their assets in high fire threat areas	See Attachment B	**Complete**
The WSAB would also like information about any circumstances where the G.O. 95 standards are not followed, and what replaces them and why.	Section 5	NCPA vegetation management program follows the stricter CAL FIRE guidelines for vegetation maintenance along the interconnects between generation facilities.	See Attachment B	**Complete**
Are there design or construction issues related to the utility's specific topography or geographic location that the Board should be aware of?	N/A	Section 4 contains a general overview of risk drivers present but no specific terrain or location issues are discussed.	See Attachment B	**Complete**
How will the utility address risks associated with facilities requiring power that abut a Tier 2 or Tier 3 HFTD?	N/A	Not specifically addressed in the WMP	See Attachment B	**Complete**

WSAB 2022 WMP Guidance Recommendations	2022 NCPA WMP section	2022 IE's Initial Assessment of WMP based on WSAB Guidance Recommendations	Responsible Party - revisions	2022 IE's 2nd Assessment of WMP
How does the utility assess its risks associated with system design and construction?	Section 4 & 5	The WMP has a general overview of how NCPA evaluates its assets based on the identified wildfire risk drivers.	See Attachment B	**Complete**
In what areas does the utility consider going above and beyond G.O. 95 or other General Order standards related to design and construction?	Section 5	In the Facility Maintenance Program of section 5 the WMP describes the upgrades under consideration to the tie-in and transmission	See Attachment B	**Complete**
WMP Metrics measure something that is helpful for progress when met as expected, and when not meeting the metric creates tension for improvement.	Section 7	The WMP uses the basic metrics of new ignitions and wires down. These metrics are appropriate to NCPA's service territory. It is recommended that NCPA choose a new metric or replace one of the existing metrics that shows the utility's progress toward reducing wildfire risk.	See Attachment B	**Complete**
the WSAB requested that WMPs include a small amount of additional context information regarding public input and approval processes for each utility.	Section 1	The WMP includes a short description of who approves the plan and that the plan is open for public review. A description of the approval process is not included in this WMP.	See Attachment B	**Complete**

DUDEK
1630 SAN PABLO AVENUE, SUITE 300
OAKLAND, CALIFORNIA 94612
T 510.601.2500 F 510.601.2501

May 17, 2023, 12108.11

James D. "Jay" Mearns, PE
Supervising Engineer / Engineer V
Generation Services
651 Commerce Drive
Roseville, CA 95678

Subject: Independent Evaluator's Report of the Northern California Power Agency 2023 Wildfire Mitigation Plan

1 Introduction

The Northern California Power Agency (NCPA) contracted with Dudek to engage in an independent evaluation of its 2023 Wildfire Mitigation Plan (WMP). This independent evaluation report describes the technical review and evaluation of the WMP prepared by the NCPA. 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 conducted a review of NCPA 's 2023 WMP from February 27 to May 5, 2023. The focus of the evaluation was to determine the comprehensiveness of WMP and ensure it included all elements required under PUC Section 8387(b)(2) (listed in Attachment A).

In addition to evaluating the elements required by the PUC, Dudek reviewed the Wildfire Safety Advisory Board's (WSAB's) specific guidance for the NCPA published in their Guidance Advisory Opinion for the 2023 Wildfire Mitigation Plans of Electric Publicly Owned Utilities and Rural Electrical Cooperatives (WSAB 2022).

This Independent Evaluator's report contains the following elements: (1) an overview of the NCPA , (2) A review of the statutory requirements in PUC Section 8387(b)(2) for local POUs, (3) A review of the specific recommendations published by the WSAB for the NCPA 2022 WMP, (4) 2022 wildfire mitigation and prevention accomplishments of the NCPA , (5) an overview of the metrics used the NCPA 's WMP, and (6) a comparison of wildfire risk reduction strategies used by the NCPA with those used by similar utilities and municipal utility industry standards.

2 An Overview of the Northern California Power Agency

The NCPA's service territory consists of several geothermal and hydroelectric generating stations plus the tie-in lines that connect the NCPA facilities to their customers. NCPA's geothermal generating facilities are in the Coastal

Ranges, specifically the Mayacamas Mountains in Lake County, California. There are four facilities plus two 230 kV tie-in lines; one that is operated by the NCPA and that connects the NCPA's geothermal generating facilities to PG&E lines to the west, and a second that is not operated by the NCPA and connects to the CALPINE facilities and extends PG&E substations to the east. The lands surrounding the geothermal facilities are undeveloped except for access roads and are covered with continuous areas of forest, brush, and mixed forest-shrubland cover. It is worth noting that CALPINE's facilities, a group of geothermal generating plants, are also situated on the same geyser field as NCPA's. These two facilities have similar wildfire risks in terms of surrounding vegetation, terrain, and firefighter access. All NCPA's geothermal facilities and the related tie-in lines are in a tier 3 High Fire Threat District.

The NCPA's hydroelectric facilities are situated on the west facing slopes of the Sierra Nevada Mountains with the generating stations located in drainages at the near the bases of several dams in Calaveras and Tuolumne Counties. There are four facilities plus one 230 kV tie-in line and a 17kV service line. The lands surrounding the hydroelectric facilities are undeveloped except for access roads and the related water infrastructure (e.g., dams, spillways, etc.). Surrounding lands are covered with continuous areas of grasslands, brush, and mixed forest-shrubland cover. NCPA's hydroelectric facilities are located both inside and outside of the High Fire Threat Districts. Two facilities plus the 17kV service line are located within a Tier 3 area, one facility is located within a Tier 2 area, and one facility is not located in a High Fire Threat District. The 230 kV tie-in line extends from Collierville powerhouse to the east through Tier 3 and Tier 2 areas as well as passing through areas outside of the High Fire Threat districts in the Central Valley near Linden, CA.

Including all facilities, tie-in lines, and service lines, 46% NCPA's service territory lies within a Tier 2 area and 26% lies within a Tier 3 area. Since NCPA is a generator of electrical power not a distributor and their facilities are in remote areas away from urban or developed areas, none of their service territory is classified as Wildland Urban Interface (WUI).

The NCPA 's service territory experiences a fire season that lasts from May to October during a typical year. During exceptionally dry years, the fire season can begin in April and extend into November. Both the hydroelectric facilities and the geothermal facilities have a fire history that includes several wildfire perimeters burning within 1 mile of NCPA facilities or lines. The 2004 Geysers fire perimeter includes NCPA's geothermal generating facilities (CAL FIRE 2020).

3 Statutory Requirements for Wildfire Mitigation Plans

PUC 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 NCPA 's WMP are included in Attachment A and are summarized here for reference.

- Staff responsibilities
- General objectives
- Wildfire risk reduction program descriptions
- The metrics used to evaluate the WMP's performance.
- How the application of previously identified metrics has informed the WMP.
- Protocols for reclosers, de-energization, and public safety power shut-off.

- Procedures for community notification and outreach
- Vegetation management plans
- Electrical equipment and infrastructure inspection plans
- Description of wildfire risks and drivers for those risks throughout the service territory, including design, construction, operation, and maintenance of equipment and facilities and topographic and climatological risk factors
- Identification of any geographic area in the service territory that is a higher wildfire threat than is identified in a commission fire threat map.
- Identification of enterprise-wide safety risk and wildfire-related risks
- How the service will be restored after a wildfire
- The processes and procedures used to monitor and audit the implementation of the WMP and identify any deficiencies, and the effectiveness of electrical line and equipment inspections.

4 Public Utility Code Requirements

Dudek found that NCPA 's WMP meets the statutory requirements of comprehensiveness per PUC Section 8387. The review of the WMP's elements is summarized relative to the application of the WMP. Dudek's assessment is in **bold text** beneath the description of the requirement. The table in Attachment A lists each PUC required element for the NCPA 's WMP and provides Dudek's initial and final assessments of the comprehensiveness of that element.

Minimizing Wildfire Risks

PUC Section 8387(a) requires the following: "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."

The NCPA 's WMP and the appendices referenced in the WMP comprehensively describe the safety-related measures that the NCPA follows to reduce its risk of causing wildfires. Dudek has determined that NCPA complies with this requirement through the design of its system, its operations, and the implementation of wildfire risk reduction and wildfire response strategies.

Evaluation of WMP Elements

Below is a summary of the WMP elements as required by PUC Section 8387, including restating sections of the WMP where applicable.

8387(b)(2)(A): Responsibilities of Persons Responsible for Executing the Plan.

Chapter 3 of the NCPA WMP comprehensively describes staff responsibilities and functions in the implementation of their WMP.

8387(b)(2)(B): Objectives of the Wildfire Mitigation Plan

Chapter 2 of the NCPA WMP comprehensively describes the utility's WMP three objectives.

8387(b)(2)(C): Prevention Strategies and Programs

Chapter 5 in the NCPA WMP describes the utility's wildfire prevention strategies. It is very comprehensive, covering existing programs. System hardening/facilities upgrade information provided by facility.

8387(b)(2)(D): Metrics and Assumptions for Measuring WMP Performance

Chapter 7 section A contains a description of the three metrics used by the NCPA in their WMP. Also included is 2020-2021 data for each metric.

8387(b)(2)(E): Impact of Previous Metrics on WMP

Chapter 7 section B describes the NCPA's plans to continue tracking the three metrics described in in section A. Section B also provides a frame of reference for '0' event metrics by comparing the NCPA's incident rate for wires down to PG&E's (NCPA's tie-in lines connect to PG&E lines).

8387(b)(2)(F): Reclosing Protocols

Chapter 5 section H states that the NCPA does not use automatic reclosers on 230 kV lines (their tie-in lines).

8387(b)(2)(G): De-energization Notification Procedures

Chapter 5 section J.2 describes the NCPAs customer notification protocols. This section contains an explanation of the notification methods and referenced NCPA policies (PM-501). Attachment D in the WMP has PM-501.

8387(b)(2)(H): Vegetation Management

Chapter 5 section E contains a comprehensive description of the NCPAs vegetation management program including fuel breaks installed around their geothermal facilities. Appendix 5 in the WMP an example of the firebreaks NCPA has installed at their geothermal facilities. Based on conversations with NCPA staff, NCPA does not install fuel breaks at their hydroelectric sites because the hydroelectric sites are located on smaller, less accessible sites.

8387(b)(2)(I): Inspections

Chapter 5 section F of the NCPA WMP comprehensively describes the utility's inspection program including the type and frequency of inspections.

8387(b)(2)(J)(i): Risks and Risk Drivers Associated with Design and Construction Standards

Chapter 4 section B in the NCPA WMP provides an overview of wildfire risk drivers in of risk drivers associated with design and construction standards.

8387(b)(2)(J)(ii): Risks and Risk Drivers Associated with Topographic and Climatological Risk Factors

Chapter 4 Section A in the NCPA WMP provides a comprehensive description of the geographic and climatological factors present across the NCPA service territory.

8387(b (2)) (K): Geographical Area of Higher Wildfire Threat

Chapter 4 Section C in the NCPA WMP describes the utility's review of the CPUC fire threat map and their conclusions about the geographical area of the high fire threat areas.

8387(b)(2)(L): Enterprise-wide Safety Risks

The introduction to chapter 4 describes that the NCPA does not have an agency-wide enterprise-risk identification and presentation. In its place is a safety policy for each type of generation asset (e.g., geothermal plant) that includes a risk-assessment process specific to that asset.

8387(b)(2)(M): Restoration of Service

Chapter 7 of the NCPA WMP has a general overview of how the utility will restore service after an outage. Two NCPA policies are referenced PM-201 and GEO-646 that specifically address restoration of service.

8387(b)(2)(N)(i): Monitoring and Auditing WMP Implementation, 8387(b)(2)(N)(ii): Identifying and correcting WMP deficiencies, 8387(b)(2)(N)(iii): Monitoring and Auditing the effectiveness of inspections.

Chapter 7 section C, D, and E of the NCPA WMP describes the utility's processes for monitoring and auditing WMP implementation, correcting WMP deficiencies, and monitoring the effectiveness of inspections. NCPA uses an ongoing process to identify risks and inefficiencies, and to develop means to address the identified issues.

5 Wildfire Safety Advisory Board Guidance Advisory Opinions

In November 2022, the WSAB published a report with a description of general recommendations for improving the WMPs for POUs and rural electrical cooperatives. At the end of the report the WSAB provided specific recommendations for each utility that submitted a WMP for review by the board. Dudek reviewed the WSAB's report, and the section below contains a summary of each recommendation the WSAB had for the NCPA 's 2022 WMP and whether the 2023 WMP has addressed the WSAB's recommendation (WSAB 2022). The materials published by the WSAB and the recommendations within are for guidance and are not statutory requirements.

1. The text on page 6 that indicates that the current WMP was initiated in 2019 and on page 7 a statement that this WMP was presented at an NCPA committee meeting – this is confusing as the 2022 updated is a complete WMP in itself. In the comprehensive revision in 2023, the WSAB expects that text like this will be resolved.

   The dates on page 6 & 7 have updated to 2022 and the current version of the WMP.

6 Northern California Power Agency 2022 Progress in Implementing Wildfire Mitigation Plan Wildfire Prevention Strategies

This section describes the NCPA's accomplishments in 2022 for the wildfire prevention program and strategies described in the WMP.

Vegetation Management

Geothermal

- Completed annual maintenance of BLM firebreaks around Plant # 1 & # 2 in March 2022.
- Completed vegetation management and line clearance work along 230 kV tie-in lines and around all nine tower bases in June 2022.
- Completed annual maintenance of vegetation around Plant #1 & #2 perimeters plus along access roads in 2022.

Hydroelectric

- Completed annual maintenance of vegetation around powerhouses and substations in 2022.
- Completed vegetation management and line clearance work along 230 kV tie-in lines and around tower bases in April 2022.

Inspections

Geothermal

- 230 kV transmission line inspection completed July 21, 2022.
- 21 kV line inspection completed July 21, 2022.
- 230 kV Drone line inspection completed October 24, 2022. Conducted by PG&E, damaged conductor found by PG&E and repaired by WAPA.
- 230 kV Physical Inspections completed October 24, 2022

Hydroelectric

- 230 kV transmission line inspection completed March 15, 2022

- 17 kV line Wood pole inspections completed June 15, 2022
- 230 kV line daycore corona and IR inspection completed June 1,2022
- 230 kV LiDAR transmission line inspection completed August 1, 2022
- NSM-Cabbage Patch 21 kV cable tests completed September 16, 2022

7 Wildfire Mitigation Plan Metric Overview

Metrics help POUs determine if their wildfire prevention strategies are effective for reducing the risk of a wildfire ignited by their electrical equipment. In 2020 the California Municipal Utilities Association published a WMP template for POUs to use in the preparation of their WMPs. This template included two metrics: number of fire ignition events and wires down events.

The NCPA adopted the two metrics suggested by the CMUA in the first and second iterations of their WMP. In 2022 the NCPA adopted an additional metric, Fall in Hazard Trees Ignitions. These three metrics: fire ignitions, wires down, and fall in hazard tree ignitions are utilized in the 2023 WMP.

The NCPA records metric data in monthly outage reports. For each event NCPA records date and time of the event, a description of the event and the cause of the event (if known), if the event was the result of an external cause, whether the outage was forced or planned, and how long the event lasted. If the event occurred along one the tie-in lines, then the location of the event along the line is described.

For the three metrics the NCPA recorded the following data in table 1 from 2020 to April 2023.

Table 1 Metric Event Record in 2020-2023

Metric	Geothermal	Hydroelectric
Fire Ignitions	0	0
Wire Down	0	0
Fall in Hazard Tree Ignitions	10 locations, 0 fall-ins	2 locations, 0 fall-ins

These three metrics with the supplemental data regarding date and time of the event, and cause of the event are useful for informing the NCPA about the effectiveness of their wildfire prevention strategies. Comparing their outage event rate on their transmission lines to PG&E's outage event rate for their transmission lines provides a good perspective on why the "0" metric events for the wire down metric is indicative of success and not an indicator of an ineffective metric.

The NCPA is considering adding metrics in future versions of the WMP including a performance-based metric that tracks overhead line inspection and includes location plus date & time data.

8 Comparison of Industry Standards and Similar Utility Wildfire Prevention Strategies

As part of this review of the NCPA 's 2023 WMP, Dudek compared the wildfire prevention strategies described in the WMP to the strategies being implemented by POUs and accepted electrical industry practices for reducing wildfire risk. The NCPA is unique in that they are primarily a producer of electrical power whose transmission lines are limited to tie-ins with electrical utilities who provide the distribution of electrical power to retail customers. NCPA's service territory is unique in that their facilities including generators and tie-lines are dispersed in areas with no development save for infrastructure related to their operations. This is particularly important in that places a greater risk to their facilities from wildfire and greater responsibility for vegetation management/defensible space to protect their facilities. Therefore, there are no comparable POU's in the state and it is more appropriate to compare their wildfire prevention programs to a relevant industry standard such the National American Electric Reliability Corporation (NERC), California Public Utility Code General Order 95 (GO 95), Public Resource Code 4292-4293, and CAL FIRE's California Power Line Fire Prevention Field Guide

8.1 Vegetation Management

The NCPA's vegetation management can be categorized as the vegetation management work done along their tie-in lines and the vegetation management work done around their facilities. For their transmission tie-ins the NCPA maintains the vegetation within the right-of-way of its transmission tie-in lines to NERC FAC-003-4. There is at least 30 feet of vertical clearance between the trees and vegetation along the tie-in lines and the wires. The corridors containing the transmission wires are typically one hundred feet in width except where terrain makes it unsafe to maintain the full 100-foot width. For their generation facilities the NCPA meets PRC 4292 & 4293 requirements as well as PUC GO 95 requirements, typically maintains a 50- to 100-foot-wide perimeter around structures.

8.2 System Hardening

Equipment Maintenance and Upgrades

All NCPA transmission line towers are entirely constructed of lattice or tubular steel and so are inherently noncombustible. Conductors and other electrical equipment attached to NCPA towers are also constructed of metal or other non-combustible materials. Transformers, circuits, and other types of electrical equipment located at substations are also constructed entirely of non-combustible materials and surrounded by a large area of bare ground. No system hardening or equipment upgrades would result in significant improvements to fire resistance of NCPA equipment. The NCPA inspects its transmission towers on a regular basis, issues with towers or tower equipment that is discovered during the inspection is repaired at the same time.

The NCPA utilizes wood poles for the 17kV distribution line at the McKay's point facility and a 21 kV lines at the NCPA's geothermal facilities. The NCPA recently rebuilt the 21 kV line and is in the process of upgrading the equipment on the 17kV.

Construction Standards

The NCPA has construction standards designed to reduce the risk of fire ignited by the failure of their electrical equipment, which include the use of animal deterrents, lightning arresters, and arc suppression fusing. The NCPA does not use expulsive fuses on any of its lines that pass over areas of vegetation.

Recloser Policy

The NCPA does not have reclosers on its 230 kV transmission lines. Relaying equipment on their 21kV Bear Canyon line is set to a zero-reclose to lockout scheme.

8.3 Situational Awareness

Patrols and Visual Inspections

The NCPA has a Transmission Maintenance and Inspection Program (TMIP) that meets the standards described in NERC FAC-501-WECC-3. NCPA regularly performs visual inspections of its equipment and lines including those in remote areas. Regular and thorough inspections particularly for transmission lines is a nationally accepted best practice for early equipment fault detection and hazardous vegetation identification.

9 Conclusion

The NCPA has prepared a comprehensive WMP for 2023. The plan meets all statutory requirements described in PUC Section 8387(b)(2) for a POU. The NCPA has also considered the recommendations of the Wildfire Safety Advisory Board and revised their WMP appropriately. The NCPA 's WMP with the provided appendices describes a wildfire mitigation program that accurately assesses the risks and risk drivers present in their service territory and implements preventative strategies that are effective at reducing the wildfire risk of these risks and risk drivers.

Based on the wildfire prevention programs described in the WMP and the progress the NCPA has made in its wildfire prevention programs, the NCPA 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

10 References

Carlson, A.R., Helmers, D.P., Hawbaker, T.J., Mockrin, M.H., and Radeloff, V.C., 2022, Wildland-urban interface maps for the conterminous U.S. based on 125 million building locations: U.S. Geological Survey data release, https://doi.org/10.5066/P94BT6Q7.

CAL FIRE. (2022, October 1). *Fire Perimeters through 2021*. Retrieved from Fire and Resource Assessment Program: https://frap.fire.ca.gov/mapping/gis-data/

WSAB (California Wildfire Safety Advisory Board). 2022. Guidance Advisory Opinion for the 2023 Wildfire Mitigation Plans of Electric Publicly Owned Utilities and Rural Electric Cooperatives Draft. Office of Energy Infrastructure Safety. October 17, 2022. Sacramento, California. Retrieved from: Wildfire Safety Advisory Board | Office of Energy Infrastructure Safety (ca.gov)

Attachment A

Northern California Power Agency WMP Review Summary Tables

CPUC Requirement

Public Utility Code 8387(b)(2)	Description of Required Element	Final Review Comment	Initial Review Comment
A	Staff Responsibilities	Good. Describes WMP responsibilities down to oversight of prevention strategies	Good.
B	General Objectives	Good.	Good.
C	Program Descriptions	Good.	Good.
D	Evaluation Metrics	Good.	Good.
E	Lessons learned, metrics application	Need to update text. WSAB expects that utilities will have a good understanding of whether their metrics are useful. Elaborate why '0' events means success.	Updated with a description of the use of metric data and plans to incorporate new metrics. Good.
F	Protocols for reclosers, de-energization, and PSPS mitigation	No reclosers. De-energization & PSPS-good.	Good.
G	Community Notification	Good. Either attached NCPA-PM-501 or briefly describe how NCPA communicates with PG&E and member agencies.	Updated with an explanation of notification methods. Good.
H	Vegetation Management	Good.	Good.
I	Infrastructure Inspections	Good.	Good.
J(i)	Grid Design, construction, and operation risks	Good. Include CALPINE facilities as a risk driver for your GEO operations.	Updated, added risk drivers for adjacent facilities. Good.
J(ii)	Vegetation, topographic, and climate risks	Comprehensive. Add in NCPA territory specific details. For example: Where do Diablo winds impact NCPA equipment or facilities? IS there a specific vegetation cover type that is high risk to the NCPA?	Updated, added detail about site or area specific risk drivers related to vegetation cover for geothermal and hydroelectric operations.

K	Identification and expansion of higher wildfire threat areas	Good.	Good.
L	Identify enterprise-wide risk	Missing	Resolved. NCPA does not utilize an enterprise-wide risk assessment process. Instead relies on location specific safety plans. Provides an equivalent level of safety
M	Restoration of Service	Good. Attach PM-201 and GE-646 to WMP if relevant.	Good.
N(i)	Monitoring and auditing of WMPs	Good. If NCPA evaluates the accomplishments or progress made with wildfire prevention strategies during the year, describe them here.	Good. NCPA staff provided spreadsheets with inspection and Veg. mgmt. accomplishments
N(ii)	Identifying and correcting deficiencies	Good. If NCPA adjusts wildfire prevention strategies during the year, describe them here.	Good. Detail added that NCPA use an ongoing process to review program accomplishments and changes in program priorities or goals due to changing conditions (e.g., weather)
N(iii)	Monitoring asset inspections	Good.	Good.

NCPA Specific WSAB Recommendations

WSAB 2023 POU WMP Guidance Advisory Opinion	Description of the WSAB Recommendation	Final Review Comment	Initial Review Comment
A3-40	The text on page 6 that indicates that the current WMP was initiated in 2019 and on page 7 a statement that this WMP was presented at an NCPA committee meeting – this is confusing as the 2022 updated is a complete WMP in itself. In the comprehensive revision in 2023, the WSAB expects that text like this will be resolved.	Update the text on page 6 that states "*In 2019, NCPA initiated the development of this current WMP*". NCPA completed the development of the initial WMP in 2020. It would be more accurate to state when you began your internal review and revision of the 2022 WMP. For example, "*In November of 2022, NCPA initiated the development of this current WMP*". Update the text on page 7 that states "*In 2019, this WMP was presented at the NCPA Commission Meeting, a public meeting, and is posted on NCPA's public website domain*" to state that the "*2023 WMP will be adopted by the NCPA Commission and presented at the NCPA Commission Meeting, a public meeting, and after adoption by the commission this 2023 WMP will be posted on NCPA's public website domain.*"	Dates have been updated. Good.

NCPA WMP Comments

Location	Page	Initial Review Comment	Final Review Comment
5.A	20	Consider removing the 2020 accomplishments from this section or shortening the statement to "Major improvements and system hardening upgrades were made to this line in 2020".	Updated. Good.
5.H	25	This sentence is missing the word 'line' "…. or use automatic reclosers on its 230 kV within the scope…."	Corrected.

REVISION HISTORY

Version 1.0 - NCPA Commission approved on December 5, 2019 per Resolution 19-100

Version 1.1 – NCPA Commission approved on May 29, 2020 per Resolution 20-43. This WMP includes the qualified Independent Evaluators (IE) report in Appendix 2.

Version 1.2 – NCPA Commission approved on May 27, 2021 per Resolution 21-56. This WMP includes the qualified Independent Evaluators (IE) report in Appendix 3.

Version 1.3 – NCPA Commission approved on May 26 2022 per Resolution 22-58. This WMP includes the qualified Independent Evaluators (IE) report in Appendix 4.

Version 2.0 - NCPA Commission approved on May 25, 2023 per Resolution 23-46. This WMP includes the Qualified Independent Evaluators (IE) report in Appendix 5.

ATTACHMENT A - PUC 8387 (B) REQUIREMENTS TABLE

Attachment A: Index of Required Element Location in WMP

2023 WMP Required Element per PUC Sec 8387(b)(2)	2023 NCPA WMP section
(A): An accounting of the **responsibilities of persons responsible** for executing the plan.	3.B., 3.C.
(B): The **objectives** of the wildfire mitigation plan.	1.B.
(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.	5.A., 5.B., 5.C.
(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.	7.A.
(E): A discussion of how the application of **previously identified metrics** to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.	7.B.
(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.	N/A – NCPA does not own or use automatic reclosers on its 230 kV lines (5.H.)
(G): Appropriate and feasible **procedures for notifying a customer** who may be impacted by the deenergizing 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 deenergization for a given event.	5.J.2.

(H): Plans for **vegetation management**.	5.E.
(I): Plans for **inspections** of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.	7.E.
(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.	(J): 4 (i): 4.B. (ii): 4.A.
(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.	N/A – At this time, NCPA does not identify any needed changes to the current boundaries as identified in current maps included in Appendix 1 – Fire Risk Assessment Maps.
(L): A **methodology for identifying and presenting enterprise wide safety risk** and wildfire-related risk.	4.B.
(M): A statement of **how the local publicly owned electric utility or electrical cooperative will restore service** after a wildfire.	7.
(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.	(i): 7.C. (ii): 7.D. (iii): 7.E

ATTACHMENT B – WSAB RECOMMENDED ELEMENTS TABLE

Table 2: Index of WSAB Recommended Element Location in WMP

2023 WSAB Recommended Elements	2023 NCPA WMP section
(A): The WSAB has requested that public owned utilities include a table that describes each of the PUC requirements and where each requirement can be found in the WMP. **This table should be incorporated into the WMP as Attachment A.**	The table describing how each of the PUC requirements have been addressed by NCPA's WMP has been added as Attachment A
(B):The WSAB has requested that publicly-owned utilities re-evaluate their general WMP objectives to take on a broader approach that goes beyond minimizing ignitions. **It is recommended that NCPA re-evaluate their objectives for the following strategies: objectives that minimize the risk of fire spread or intensity and objectives that allow NCPA to restore services/return to full capacity after a wildfire spreads impacts their assets.**	NCPA has evaluated and updated its strategies in section 5.A. of the WMP to address methods of minimizing the risk of fire spread. The strategies for restoration of services contained in section 5.H. of the WMP have been evaluated and will not be revised at this time based on the minimal impact to customers related to potentially delayed restoration of service.
(C): The WSAB has requested that future WMP's contain a description of the public input and approval process for the WMP. **It is recommended that NCPA add a small paragraph describing the utility's public approval process for their plan and where the WMP is posted for review by the public.**	A paragraph describing NCPA's public document accessibility, review and approval process, and method for incorporation of public comments into the WMP plan has been added to section 3.B. of the WMP.
(D): The board has recommended that public owned utilities re-evaluate their metrics to determine if they are useful for informing them on the effectiveness of the plan. **It is recommended that NCPA consider adding a new metric or replacing an existing metric with a performance-based metric like equipment inspections or trees trimmed as well as another leading metric such as number of vegetation contacts with wires discovered or equipment faults detected.**	NCPA has considered the recommendation to consider adding a new metric or replacing an existing metric with a performance-based metric. A residual risk is related to the potential for soil instability in areas previously affected by wildfire to result in a "fall in" by trees of sufficient height to contact Distribution lines. Section 7.A. has been updated to add this new metric.
(E): The WSAB recommends that the Independent Evaluators report contain a comparison of the utility's operations and equipment to	NCPA has addressed specific equipment and operational practices

relevant industry standards. **It is requested that NCPA provide a list of specific operational practices and equipment that NCPA employs to reduce the risk of wildfire within the service territory.**	to reduce the risk of wildfire within the service territory in section 5.A.of the WMP.

Table 3 – Index of Wildfire Risks and Controls Evaluations within the WMP

Identify and Assess Wildfire Event Elements	Fuel	Ignition	Design Controls	Implement Controls	Evaluate Controls (WMP Section
Tree contact or downed conductor during wind centered events		X	Design and maintain Distribution and Transmission facilities in accordance with PG&E approved practices for wildland fire prevention. De-energize facilities when needed during high wind/red flag conditions.	PG&E Greenbook Design Standards, Public Safety Power Shutoff (PS	3.C. Wildfire Response, Communication and Recovery and 5.A.(4) Asset documentation.
Dead limbs or trees contacting Distribution lines	X	X	Identify and remove dead and dying trees or limbs from area adjacent to lines.	TVMP and Power Line Fire Prevention Field Guide (PLFPFG)	5.E. Vegetation Management
Increased tree mortality	X	X	Identify and remove dead and dying trees from area adjacent to lir	TVMP and PLFPFG	5.D. Tree Mortality
Trees encroaching on flashover distances to Transmission facilities		X	Identify and remove encroaching trees. De-energize facilities upon CAL FIRE request.	TVMP and Emergency Operating Guidelines, Collierville Power House Bellota-Collierville 230 kV Lines (PM-201)	5.I. De-Energization
Fall-in trees resulting from landslides or trunk failures		X	Routine inspections and non-routine incidental observation.	PLFPFG, Sections 12-19.	5.B. Potential Climate Change Effects
Fuses or conductors dropping molten metal		X	Use of non-expulsion type fuses in High Fire Risk Areas (HFRA), protection of Transmission and Distribution circuits in accordance with design standards, patroling of lines prior to re-energization.	PG&E Greenbook Design Standards, PSPS, PM-201 & GEO-646	3.C. Wildfire Response, Communication and Recovery; 5.A.(4) Asset documentation; 5.H. Recloser Policy and 7. Restoration of Service.
Untimely fire department response	X		Emergency Action Plan (EAP) Training and Coordination with local agencies	Annual tabletop EAP reviews with USFS, CAL FIRE, CHP, Calpine, BLM, LACOSAN, Calaveras, Tuolumne & Alpine County Sheriffs, CA Dept. of Parks & Recreation	1.B.1. Coordination with Local Agencies
Undetected equipment damage or failures		X	Routine inspections and non-routine incidental observation	Regular patrols of Distribution lines, NERC FAC-003 Inspections in accordance with (IAW) NCPA procedure GM-305	5.A.(1) Facility Maintenance Program and 5.A.(2) Emergency Operating Procedures
Uncoordinated wildfire response	X		Personnel training and notification to Dispatch center for coordinated response.	EAP training for all field personnel, Facility specific Emergency Response Plans (ERP)	Communication and Recovery
Staff unaware of wildfire risk or response	X		Personnel training and seasonal awareness reminders.	EAP training for all field personnel, Monthly safety meetings	5.G. Fire Prevention, Safety, Emergency Response Training
Extended timeframe for fire event recovery		X	Leverage additional line personnel and resources via mutual aid agreements.	Mutual aid agreements with member utilities, California Utilities Emergency Association (CUMA) and American Public Power Association (APPA) for Distribution assets, WAPA agreement for maintenance and repair of Transmission assets	3.F. Mutual Aid Agreements
Extended drought conditions; Underbrush damage from fires; Vegetation stress or species changes	X		Routine inspections and non-routine incidental observation.	Routine patrols of Distribution lines, NERC FAC-003 Inspections in accordance with (IAW) NCPA procedure GM-305	5.C. Potential Climate Change Risk Management Practices
Lightening strikes		X	Awareness and response.	EAP Coordination with CAL FIRE for wildfire ignition	5.B. Potential Climate Change Effects
Vehicles operating in dry vegetation areas		X	Awareness and periodic personnel training.	Monthly plant safety meetings	3.B. Wildfire Prevention Organizational Responsibilities
Vegetation clearing operations		X	Awareness and periodic personnel training.	TVMP and PLFPFG	5.A.(3) Vegetation Management Program
Hot Work		X	Awareness and periodic personnel training.	GS-111 (Hot Work Procedure) and GS-116 (Welding Safety Procedur	5.G. Fire Prevention, Safety, Emergency Response Training
Undetected fire risk change	X		Periodic review of fire risk categories.	Annual review of Wildfire Management Plan including Fire Hazard Zone classifications	2.C. Identifying Unnecessary or Ineffective Actions; 4.C. Changes to CPUC Fire Threat Map and 7.C. Monitoring and Auditing the Plan.
Protective device delayed clearing		X	Annual review of protective equipment calibration and testing records. Periodic (every 6 years) verification of protective device operating time IAW NERC PRC-005	NCPA GS-304 Protection System Maintenance and Testing Program	5.A.(1) Facility Maintenance Program