2022 Wildfire Mitigation Plan

Vegetation Management

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April Schneider, Principal
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a Better California

Overview

In 2021, in addition to the work performed in our Routine, Tree Mortality and Pole Clearing programs, we were able to reduce the potential for vegetation caused ignitions by:

- **COMPLETING** 1,983 miles of EVM work, 98 percent of which was focused on the highest 20 percent or risk-ranked Circuit Protection Zones
- **EXPANDING** 218 miles of transmission ROWs to reduce vegetation contact with our transmission facilities
- **ENHANCING** our vegetation management work verification and training to ensure the quality of work performed

In 2022, we will continue to perform our vegetation management programs by:

- **PERFORMING** 1,800 miles of EVM work
- **COMPLETING** detailed LiDAR inspections
- **CONTINUING** a pilot program to include an enhanced process to perform visual assessment of all sides of potential strike trees on routine vegetation management patrols in HFTDs. The pilot program will inform an implementation of this enhanced process on routine vegetation management patrols in HFTDs
- **UNDERTAKING** extensive work quality audits and reviews through our Quality Assurance Vegetation Management and Quality Verification Vegetation Management programs.

Initiative Targets

2022 Initiative Targets	Date
Complete EVM work on 1,800 risk ranked distribution circuit miles, barring External Factors.	12/31/2022
Complete work on at least 9,000 poles identified as needing work during pre-inspection in PG&E's Vegetation Management Database as of October 1, 2021, in HFTD areas or HFRA, not required by PRC 4292 and barring External Factors.	4/30/2022
Complete defensible space inspections in alignment with the guidelines set forth in PRC 4291 at **132 distribution substations** within HFTD areas or HFRA, barring External Factors.	12/31/2022
Complete defensible space inspections in alignment with the guidelines set forth in PRC 4291 at **55 transmission substations** within HFTD areas or HFRA, barring External Factors.	12/31/2022
Complete defensible space inspections at 61 Hydroelectric Generation Substations and Powerhouses within HFTD areas or HFRA, barring External Factors.	12/31/2022
Complete utility defensible space work on a minimum of 7,000 poles in the HFTD, barring External Factors.	12/31/2022
Perform vegetation management program quality audits prioritizing HFTD/HFRA areas. Statistically valid methodology parameters, such as a confidence level of 95%, will be utilized.	12/31/2022

One Veg Program

Strategic elements of the current EVM program scope are anticipated to integrate to our Routine program by 2023, supported by technology, process, and sourcing enhancements to be planned & executed through 2022

Scope	Current Scope Within HFTD *2021 Executed & 2022 Plan*			Future Scope Within HFTD (One Veg Scope) *2023 & Beyond*		
	Routine	Tree Mortality	EVM	Routine	Tree Mortality	EVM
Hazard Trees	✓		✓	Hazard Trees – Enhanced visual assessments of potential Strike Trees		
Strike Trees			TAT			
Record Creation			All **Strike** Trees	All Trees **Requiring Work**		
12' Radial Clearance	✓		✓	✓		✓
Priority Tree Mitigation	✓	✓	✓	✓	✓	✓
Dead Tree Mitigation	✓	✓	✓	✓	✓	
Overhang Removal			✓			✓
Overhang Maintenance	✓			✓		
Final Work Verification			✓	✓		✓

Routine / "One Veg" Program

✓ Continuation of existing routine maintenance scope

✓ Performing visual assessment of all sides of potential Strike trees, as well as record creation for any trees requiring work.

EVM Program

✓ Continuation of overhang removal work on remaining ~65% of HFTD mileage

✓Key Take Away

- Visual assessment from all sides of potential strike trees on Hazard Trees to be comprehensive in the determination of risk.
- Record creation will be focused on those trees which upon inspection will require work to be performed.

Questions & Feedback

Together, Building a Better California

Vegetation Management

Michael Daleo
Manager, Wildfire Mitigation & Vegetation Management

Vegetation Management

Continue to effectively & proactively mitigate fire risk through multiple annual Vegetation Management activities

2021 Program Accomplishments

- >12K targeted trees trimmed or removed to enhanced clearances
- Zero tree-related ignitions on distribution circuits
- Strengthened HFTD inspections with four new internal patroller positions
- Successful implementation of new advanced work management system
- ~11K trees distributed to promote sustainability & environmental enhancement
- 46% of all green waste diverted from landfill to recycling centers

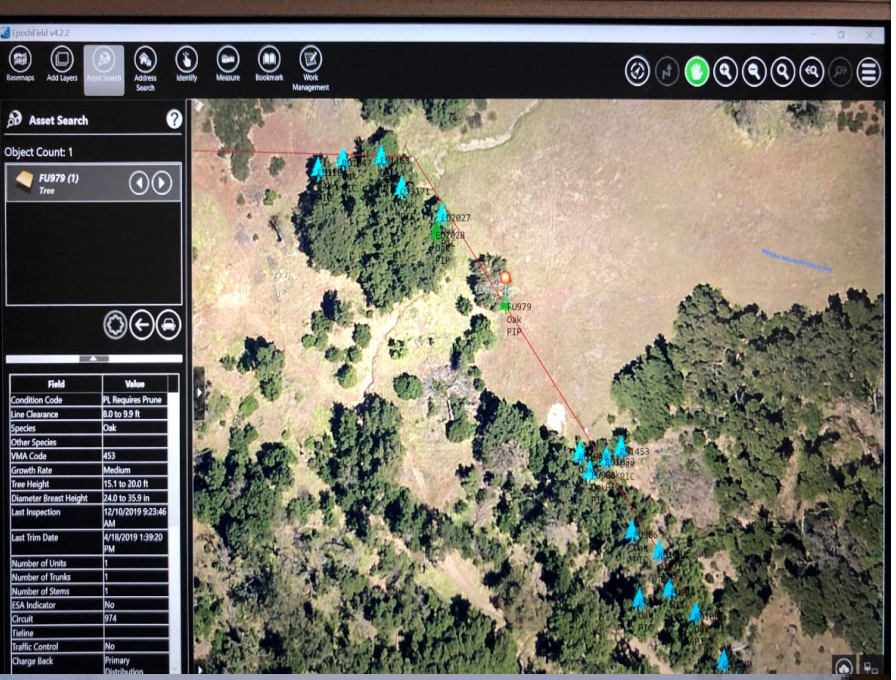
2022 Planning

- Further integrate LiDAR & satellite imagery technology
- Perform additional off-cycle HFTD inspections before peak fire season
- Engage customers through interactive online survey
- Expand situational awareness through integration of VRI & inspection activities
- Plant or distribute 10K trees, supporting company sustainability initiative

Preparing for 2022 Wildfire Season

Mitigating wildfire risk through tree pruning & removal

- **~ 480,000 inventory trees** inspected annually
- **~ 245,000 trees** in HFTD annually receive a second Level 2 inspection
- **~ 12,500 targeted tree species** for enhanced trimming
- **64,000 inventory palms** across service territory; **~ 5,000** removed annually
- **100% of identified overstrike** (overhanging branches) in the HFTD abated



Vegetation Management Inventory – Tree Database

- Contractor activities recorded electronically, including asset location & tree attributes
- GIS-based - all structures numbered in field & in database
- Info uploaded nightly & visible to all users next day

2021 Accomplishments

- Rollout of “EPOCH” electronic work management system
- Updated information for improved customer notification and engagement
- Accurate GPS positioning of each inventory tree

2022 Planning – Begin integration of genus/species

2021 Fuels Modification

Reducing flammable fuels by mechanically thinning native vegetation & removing non-native/dead vegetation in Tier 2 & 3 of the HFTD

- Target poles that already require brushing for fire prevention (PRC 4292)
- Additional thinning of vegetation (50-ft radius around pole)
- Prioritized using circuit risk modeling
- Low environmental & cultural impacts

Accomplishments

- **2798** customers engaged
- **203** poles completed
- **27.15** acres thinned
- **$1.51M** implementation cost

Sustainability Strategy

Vegetation Management, Community Relations & Environmental Services partnering to support & promote sustainability

- 10K trees annual commitment. **11,673 trees** planted in 2021
- Customers, schools, cities, parks, Homeowner Associations, tribal, land agencies, etc

Key Considerations:

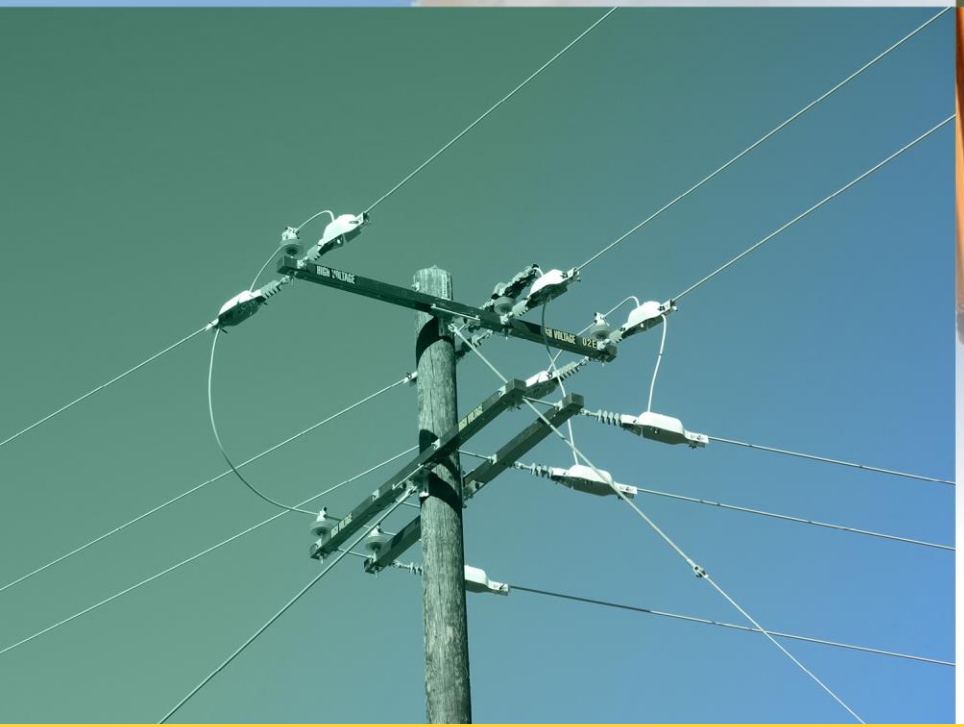
- Intelligent water use
- Desirable planting location
- Right tree, right place
- Urban heat island mitigation
- Promote biodiversity

SOUTHERN CALIFORNIA EDISON®

VEGETATION MANAGEMENT

2022 WMP Technical Workshop

March 10, 2022



2022 WILDFIRE MITIGATION PLAN UPDATE

Energy for What's Ahead®

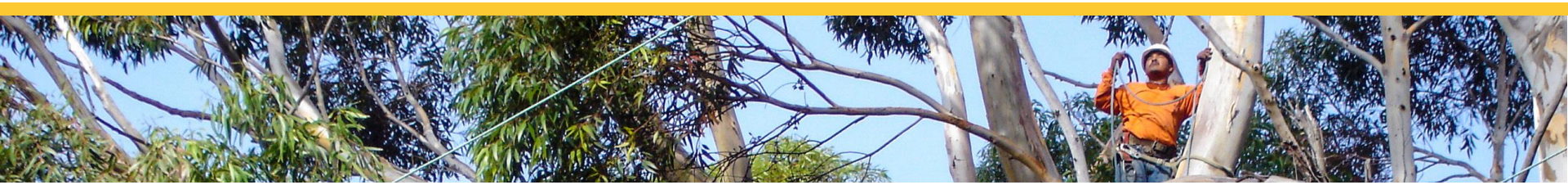
Agenda

Presenter: Melanie Jocelyn – Principal Manager, Vegetation Management

Topics

1. Vegetation Management Overview
2. Vegetation Management Strategy
3. Vegetation Management Inspections
4. 2022 Key Program Changes

Vegetation Management Overview



Overview

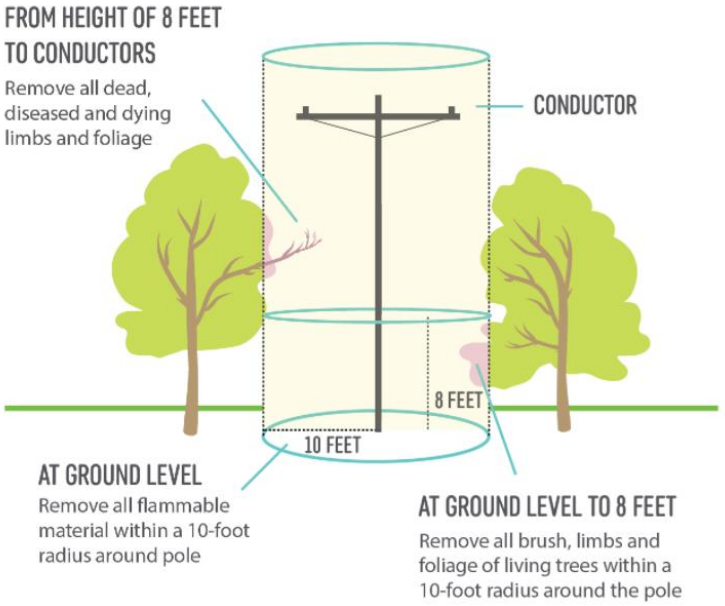
- Prevent risks to public safety and system reliability by managing vegetation in proximity to electric facilities
- Inspect and mitigate trees in HFRA for routine line clearing and expanded clearances
- Specific vegetation wildfire mitigation activities performed in HFRA include:
    - Hazard Tree Management Program (HTMP) to inspect 330 circuits and assess any trees with strike potential along those circuits
    - Dead and Dying Tree Removal Program to inspect 900 unique circuits and prescribe mitigation for dead and dying trees with strike potential along those circuits
    - Perform expanded pole brushing on 78,700 to 170,000 Distribution poles

Vegetation Management Strategy

- Focus on enhancing risk-based prioritization to evolve VM program strategy and planning
- Reduce or eliminate risk of vegetation-to-conductor contact through traditional and alternative long-term sustainable practices
  - Continue work towards achieving enhanced clearances for full annual cycle maintenance
  - Remove trees that cannot maintain clearance for a full annual cycle
  - Remove trees that are “fall-in” and "blow-in" risks (Hazard Tree Management Program and Dead and Dying Tree Program)
  - Conduct supplemental inspections in areas of elevated risk
  - Perform independent risk-informed quality control inspections to validate program objectives are being met
- Improve customer and community engagement including updates to communications for planned work, increased local agency discussions, and surveying to obtain customer feedback
- Invest in an integrated software platform that will help streamline scheduling and processing of work, improve data management, and facilitate advanced analytics

Vegetation Management Inspections

- **Routine Line Clearing** inspects for vegetation encroachments to identify the clearance needed to mitigate potential ignition risks.
    - Annual inspection schedule; additional supplemental patrols as appropriate.
- **Pole Brushing** inspects and removes vegetation at the base of distribution poles to reduce the probability of ignition and/or fire spread due to a spark or contact from failed equipment.
- **Hazard Tree Management** entails detailed assessment of trees outside utility rights-of-way, but still within the Utility Strike Zone. Trees that present safety or reliability risks are mitigated.



- The **Dead and Dying Tree Program** inspects and removes dead, dying, or diseased trees affected by drought conditions and/or insect infestation.
- **LiDAR** is the preferred inspection methodology for determining vegetation encroachments caused by sag and sway/line dynamics on bulk transmission lines.
    - The feasibility of performing additional LiDAR inspections on distribution is being evaluated.

2022 Key Program Changes

Key Program Changes
(2021 vs. 2022)

- In 2022, **Tree Risk Index (TRI)** will be used to inform planning, scheduling, and oversight activities to prioritize highest risk areas.
  - 2022 Vegetation Program Applications include: Hazard Tree Mitigation, Quality Control, and Line Clearing Inspections
- Consolidating vegetation programs into a single digital tool to streamline work management – will lead to efficiencies and better portfolio visibility
- Recalibrated scope of pole brushing program using advanced risk analysis that considers fire propagation potential and other variables
- **Enhanced Supplemental Patrols** – Expanded use of LiDAR acquisition in Distribution for patrols and enhanced fire season readiness (e.g., AOCs and Canyon Patrols)
  - Evaluation of general remote sensing capabilities (e.g., LiDAR and satellite imagery) for targeted routine inspection work
- **Integrated Vegetation Management (IVM)** – the practice of promoting desirable, stable, low-growing plant communities that will resist invasion by tall growing tree species using appropriate, environmentally-sound, and cost-effective control methods
  - Currently working on pilots for tree growth regulator, planting, grazing, and post-fire restoration projects

Thank You