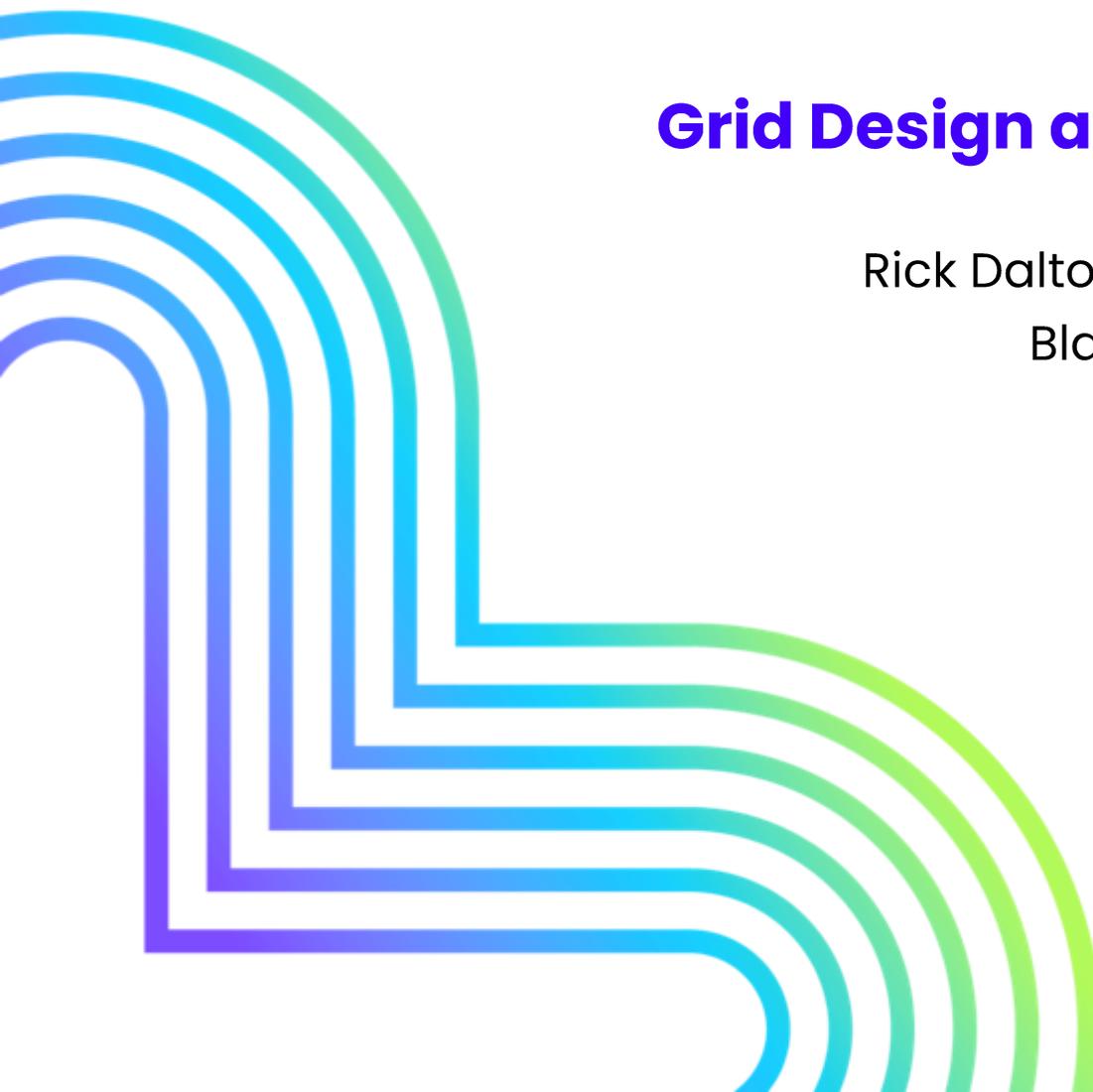




Liberty 2022 Wildfire Mitigation Plan Update

**OEIS Public Workshop
May 18, 2022**





Grid Design and System Hardening

Rick Dalton, Senior Director, Engineering

Blaine Ladd, Director, Operations



System Hardening Initiatives

- In 2021, Liberty advanced system hardening efforts by:
 - Completing four planned covered conductor projects
 - Completing pole replacements, as part of:
 - G.O. 165 Level 2 pole replacements
 - Test and Treat pole replacements
 - Fire and storm damage pole replacements
 - Covered conductor projects
 - Systematically replacing equipment that creates ignition risk, such as expulsion fuses and tree attachments
 - Improving substation infrastructure by installing substation animal guards and replacing oil circuit breakers
 - Explore and pilot new technologies to improve system resiliency



Grid Design and System Hardening

Covered Conductor

- 11 miles of covered conductor projects completed in 2020 and 2021
- 15 miles of covered conductor projects planned for 2022 and 2023
- Risk mapping and modelling drive covered conductor and other grid hardening initiatives
- Covered conductor utilized to create resiliency corridors
- Continue to evaluate alternatives





Grid Design and System Hardening

Emerging Technologies

- Microgrids
- Distribution Automation
- Grid Topology
- DFA, HIFD, Fault Detectors





Risk Assessment and Mapping

Cindy Fisher, Manager, Rates and Regulatory Affairs
Chris Lautenberger, Consultant, Reax Engineering

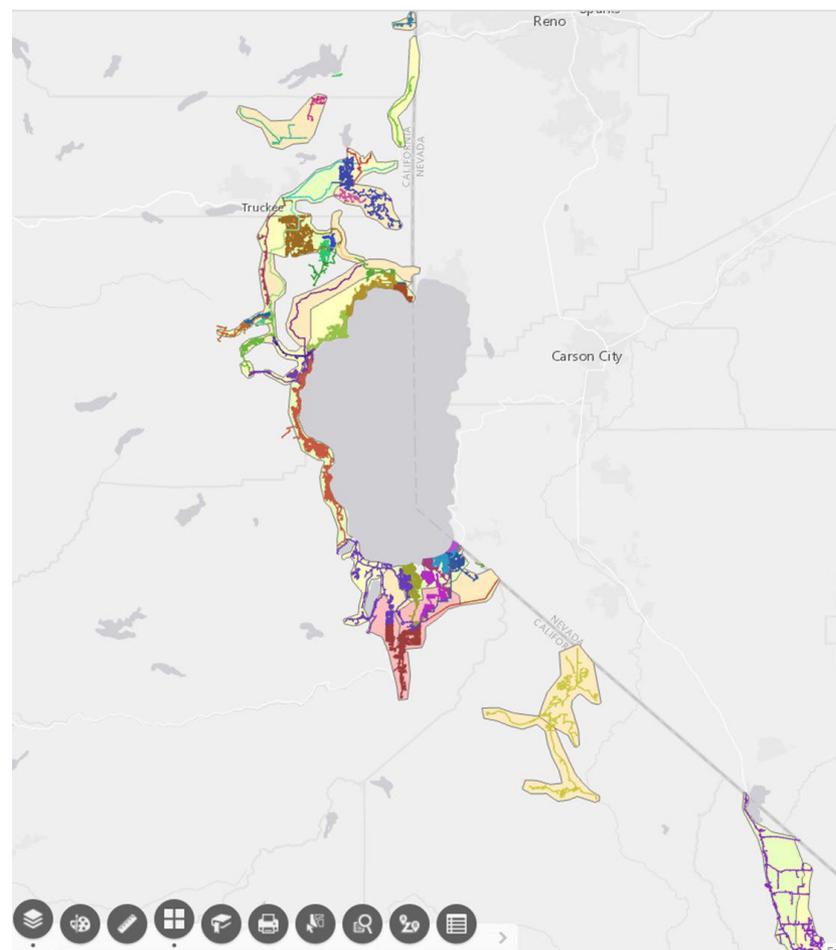


Risk Assessment and Mapping

Accomplishments in 2021

- Used historic outages to model outage rates and ignition probability
- Identified new high wildfire circuit segments based on the results
- Fire propagation model consequences are summarized by circuit and statistically arranged from 95th percentile to 99th percentile
- Ignition and fire model outputs are visually displayed

Liberty Wildfire Risk Map

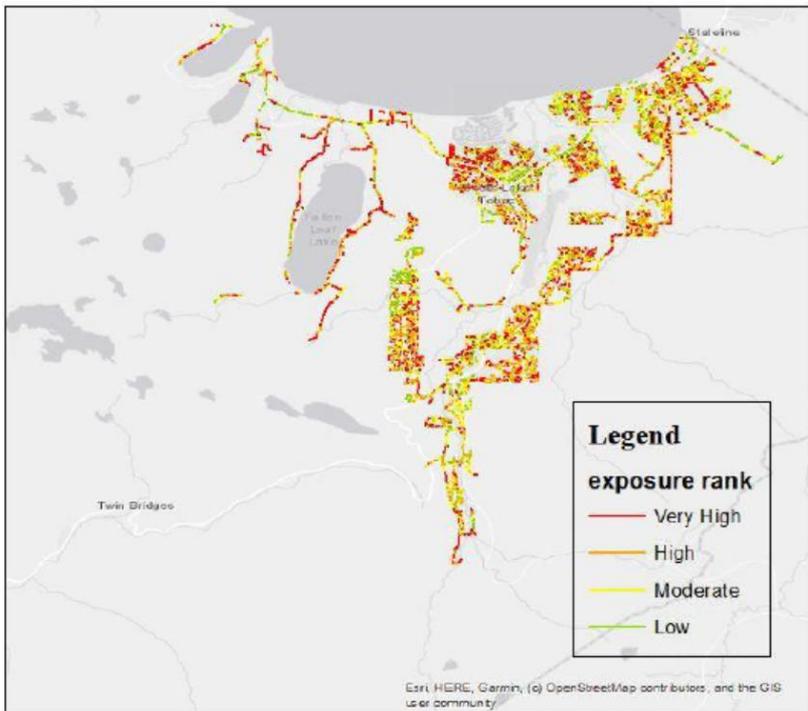




Risk Assessment and Mapping

Liberty Circuit Risk Assessment

- Wildfire risk can assess circuit risk, tree risk, pole risk and be used to plan mitigation efforts



Circuit	Circuit Miles By Reax Risk					Total	High Risk Score	Risk Rating
	N/A	Low	Moderate	High	Very High			
MEY3300					52.59	52.59	262.97	Very High
MULLER1296				43.62		43.62	109.04	Very High
MEY3400		13.62	17.32	5.32	18.11	54.37	103.84	Very High
MEY3500		11.12			15.97	27.09	79.84	Very High
GLS7400		9.71	3.66	19.34		32.71	48.34	Very High
625 - 60kV (Tahoe City-Kings Beach)		0.33	2.36	12.20		14.90	30.51	High
132 - 120 KV (Truckee-Squaw Valley)		4.68	5.71	12.10		22.50	30.26	High
MEY3100		11.86		0.15	5.51	17.52	27.92	High
SQV7201			1.09	10.78		11.88	26.95	High
MEY3200		16.54			4.96	21.50	24.80	High
111 - 120 KV (Meyers-Buckeye)				3.91	2.85	6.76	24.04	High
HOB7700				8.81		8.81	22.03	High
640 - 60kV (Meyers-Stateline)		3.49		0.61	3.90	8.00	21.02	High
TRK7204				6.80		6.80	17.01	Moderate-High
TRK7202		1.45	4.28	6.35		12.07	15.87	Moderate-High
BKY4201			3.44	5.88		9.32	14.69	Moderate-High
SQV8200				4.93		4.93	12.32	Moderate-High
CAL204			0.60	4.33		4.93	10.82	Moderate-High
650 - 60kV (Truckee-Kings Beach)		3.72	1.53	4.11		9.36	10.27	Moderate-High
188 - 60kV (Kings Beach - Northstar)				3.29		3.29	8.23	Moderate-High
RUS7900				3.27		3.27	8.19	Moderate-High
629 - 60kV (Squaw Valley-Tahoe City)		0.33	2.81	2.04		5.18	5.09	Moderate
TRK7203		7.45	0.37	1.98		9.81	4.96	Moderate
STL3101		14.44		1.35		15.79	3.36	Moderate
BKYS100			0.92	1.31		2.23	3.28	Moderate
TAH7200		0.44	3.72	0.47		4.63	1.18	Moderate
KBS2800				0.42		0.42	1.06	Moderate
NST8600				0.11		0.11	0.26	Low
SMP8700	0.24					0.24	0.00	Low
T634	0.15	0.33				0.48	0.00	Low



Risk Assessment and Mapping

2022 Planned Improvements

- Refine analysis at the circuit segment level
- Adjust for annual improvements – vegetation clearances, CEMA tree removals, pole replacements, and other grid hardening efforts
- Map pilot detection device installations and coverage areas, automatic reclosers (grids), and overlay with PSPS risk zones
- Update RSE calculations with inputs/studies from utility risk modeling working groups



Vegetation Management

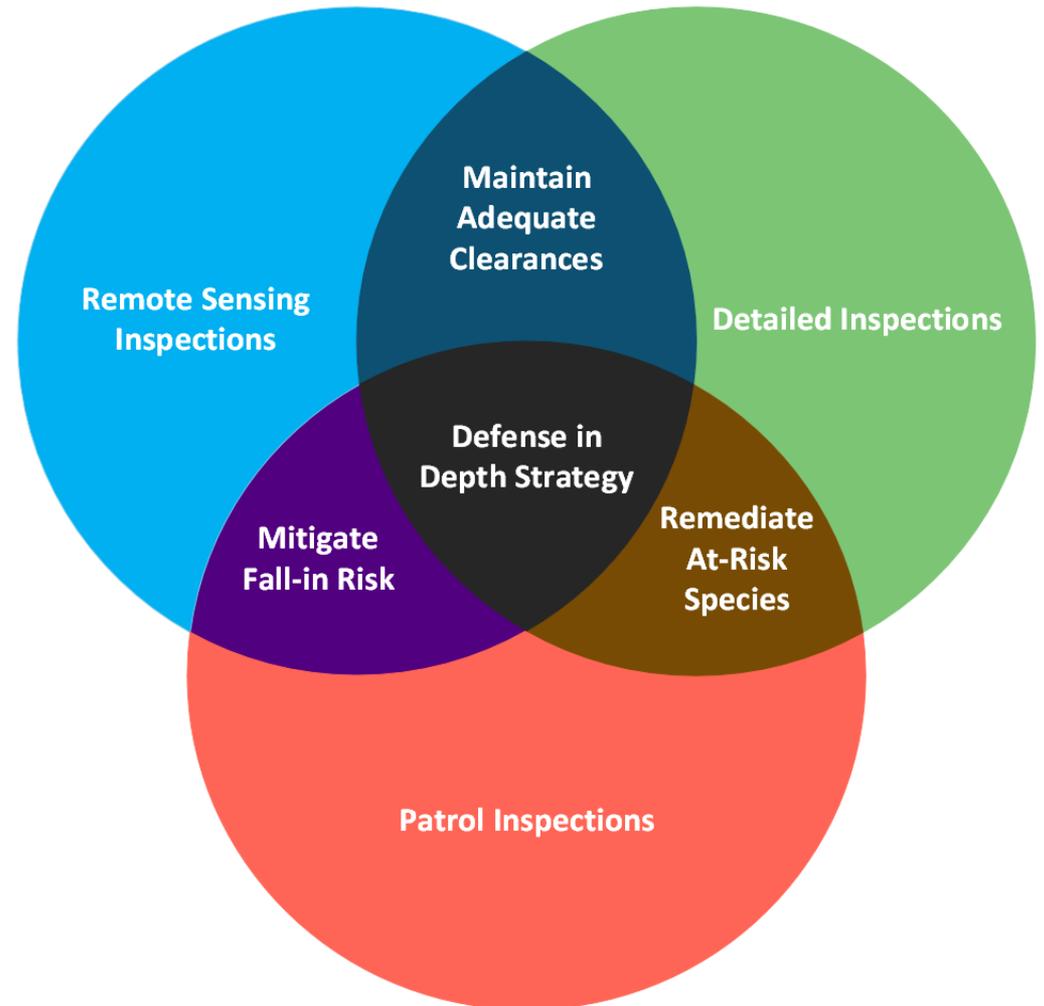
Peter Stoltman, Manager, Vegetation Management



Vegetation Management

Program Overview

- Manage vegetation threats using a multi-faceted approach
- Three inspection protocols with corresponding maintenance activities
- Post work verification and Quality Control Inspections
- Environmental, social, and governance criteria

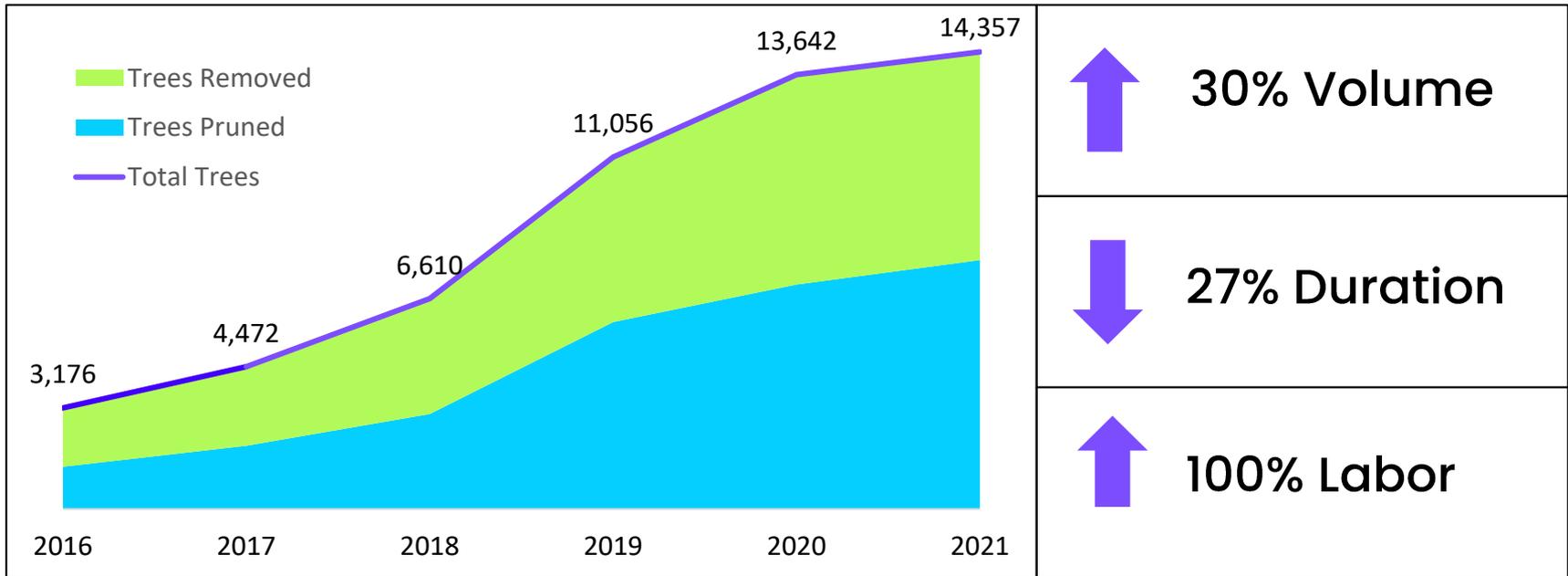




Vegetation Management

Accomplishments

5 Year Tree Work History





Vegetation Management

Outlook

Three Years

- Refine new processes
- Improve training
- Integrate technology
 - Tree health imaging
 - Artificial Intelligence and Machine Learning
 - Workflow and Process Management Tools
- Make more use of available data

Ten Years

- Operational excellence in achieving WMP objectives
- Demonstrate value beyond regulatory compliance and resource protection
- Promote sustainable vegetation management programming with Integrated Vegetation Management Practices
- Emphasize environmental, social, and governance criteria



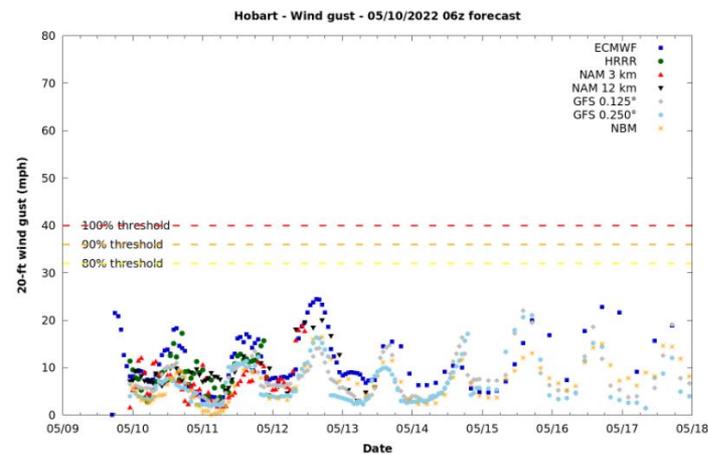
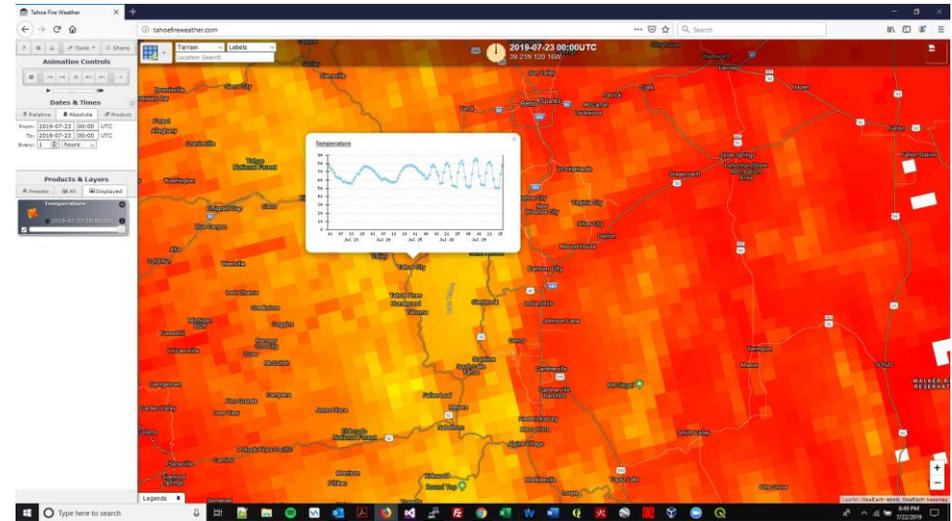
Public Safety Power Shutoff (PSPS)

Eliot Jones, Senior Manager, Wildfire Prevention
Lee Kiolbasa, Manager, Emergency Management
Kate Marrone, Manager, Business and Community Development



PSPS Approach

- Weather Factors:
 - Wind speed
 - Humidity
 - Temperature
 - ERC (Energy Release Component)
 - FFWI (Fosberg Fire Weather Index)
 - BI (Burning Index)
- How We Monitor:
 - Liberty's weather station Network
 - Fire Weather Forecast page
 - Fuel Sampling
- Determining Scope:
 - PSPS zones





Training and Exercises

- Training on Incident Command and Conducting PSPS Exercises:
 - ICS Training and PSPS Table Top Exercise—May 25, 2022.
 - PSPS Table Top Exercise with Public Safety Partners—June 23, 2022.

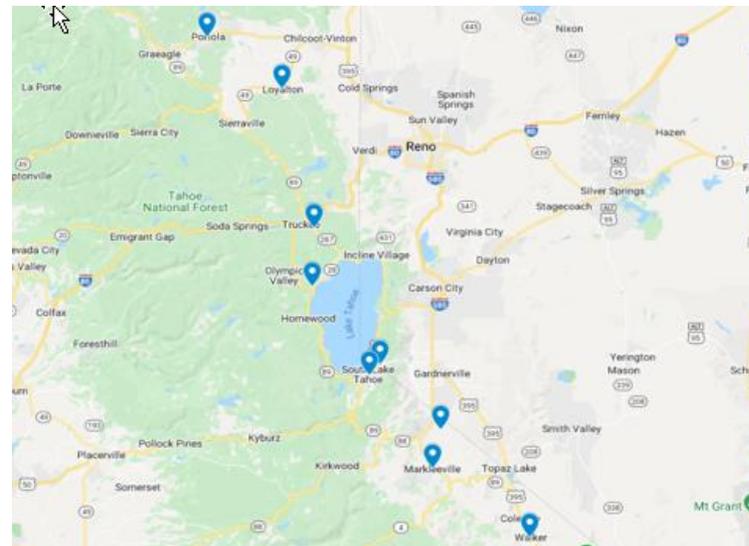
Public Safety Partner Support

- Mapping all Critical Infrastructure in the Liberty service area
- Updating the Liberty Utilities Public Safety Partner Portal



PSPS Customer Support

- Notification
- Community Resource Centers
- Staff support
- Resources



- | | |
|---|--|
|  The Veteran's Memorial Hall
449 W. Sierra Ave.
Portola, CA 96122 |  Walker Community Center
442 Mule Deer Drive
Walker, CA 93517 |
|  Loyalton Senior Center
302 1st Street
Loyalton, CA 96118 |  The Turtle Rock Community Center
173 State Route 89/4
Markleeville, CA 96120 |
|  Truckee Tahoe Airport
10356 Truckee Airport Road
Truckee, CA 96161 |  Woodfords Community
96 Washoe Blvd
Markleeville, CA 96120 |
|  Tahoe City Public Utility District
221 Fairway Drive
Tahoe City, CA 96145 |  Hard Rock Hotel and Casino
50 US 50
Stateline NV 89449 |
|  South Lake Tahoe Middle School
2940 Lake Tahoe Blvd.
South Lake Tahoe, CA 96150 | |





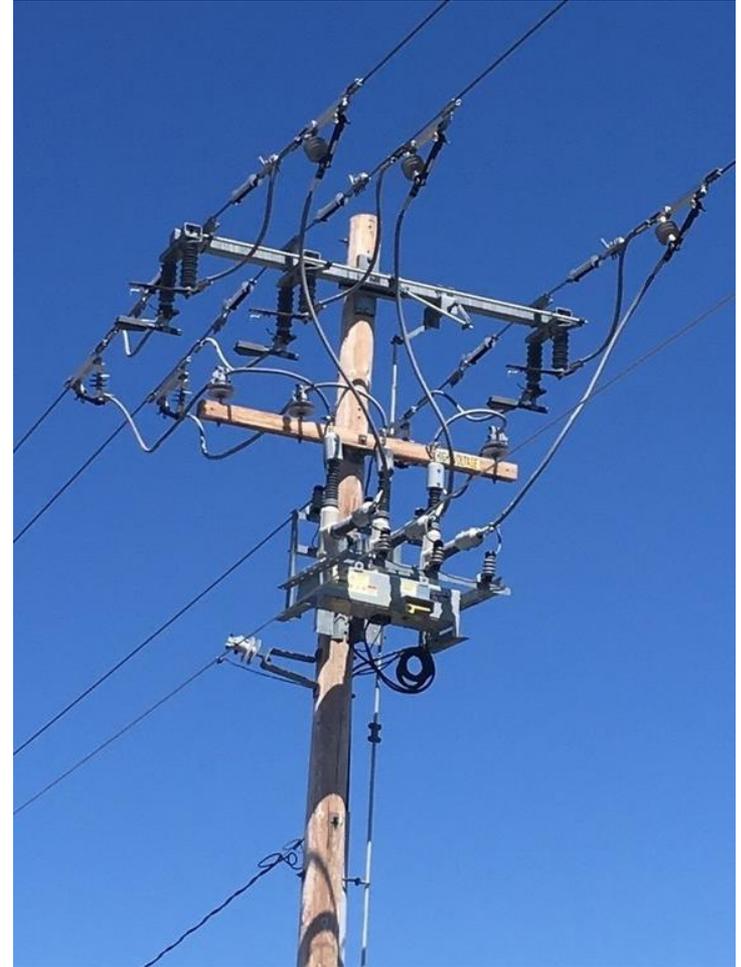
Asset Management and Data Governance

Blaine Ladd, Director, Operations
Eliot Jones, Senior Manager, Wildfire Prevention



Inspection Improvements

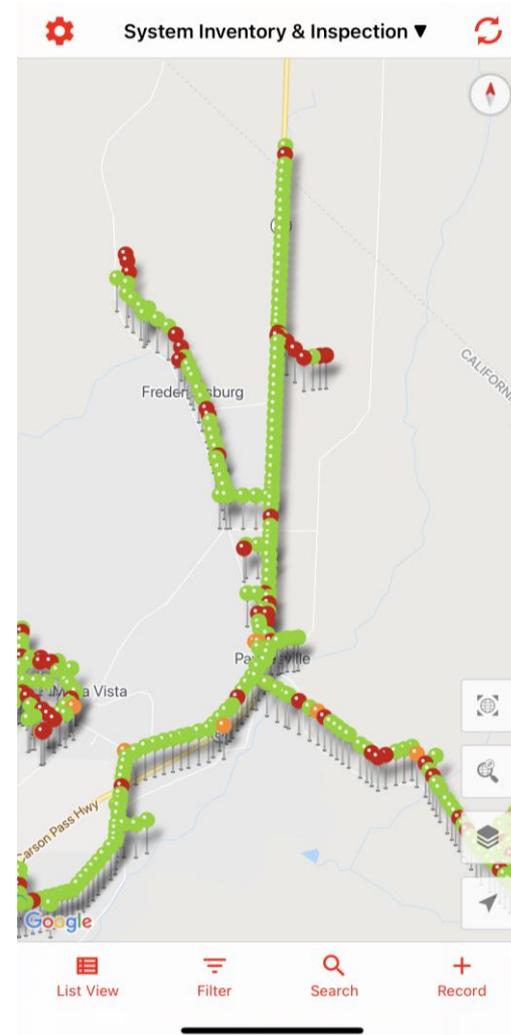
- Completed inspections on the entire overhead system in 2020
- App-based platform for G.O. 165 inspections
- Improved inspection practice allows for prioritized mitigation of at-risk structures
- New QA/QC program for inspections implemented in 2022
- Evaluating revised inspection timelines based on risk mapping, modeling, and HFTD threat zones.
- Considering applications for infrared imagery





System Inventory

- In 2020, Liberty conducted a system-wide inventory of all overhead assets
- Serves as a baseline of system condition, is being used to develop programs to proactively replace infrastructure
- Results of the full system survey provide the basis for an asset data management system that can be used for prioritizing future work based on wildfire risk modeling and fire risk maps



Thank you

