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November 18, 2022

**VIA ELECTRONIC FILING**

Public Utility Commission of Oregon  
Filing Center  
P.O. Box 1088  
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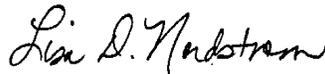
**RE: UM 2209/AR 638—Idaho Power’s Presentation Slides on Wildfire Mitigation Plan**

Attention Filing Center:

Please find attached for electronic filing Idaho Power Company’s presentation slides from the virtual workshop held on Thursday, November 17, 2022, regarding the above matters.

If you have any questions, please do not hesitate to contact me at (208) 388-5825.

Very truly yours,



Lisa D. Nordstrom

LDN/sg  
Enclosures

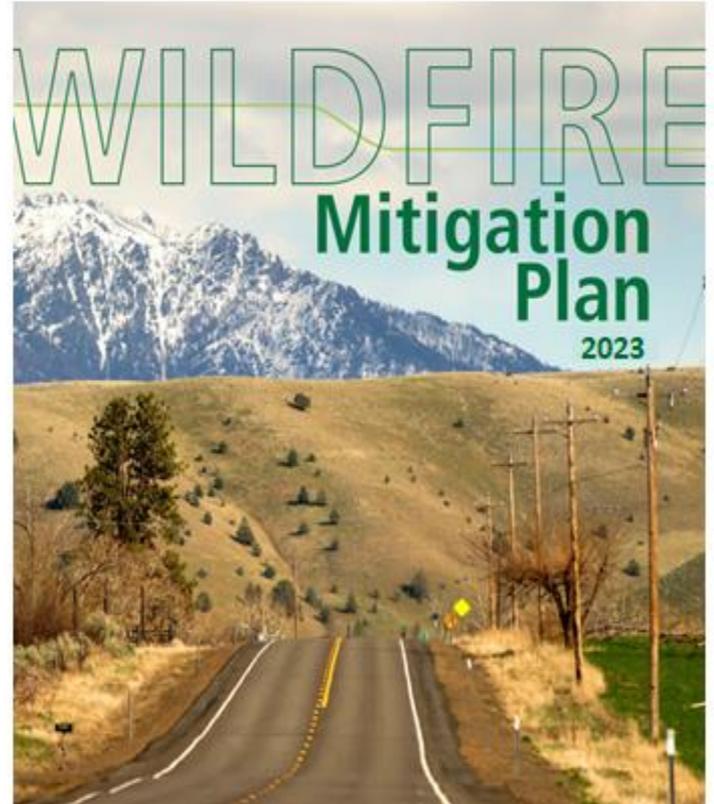
# Wildfire Mitigation Annual Update and Workshop



November 17<sup>th</sup>, 2022

# Agenda

- Goal: Provide an overview of updates for our 2023 WMP and gain feedback
- 2022 year in review
  - Major accomplishments
  - Metrics to gauge effectiveness
  - Lessons learned
  - Public engagement activities and feedback received
- Break
- Upcoming changes for 2023
- Recommendations by Commission Staff
- Challenges for the 2023 update
- Discussion and questions



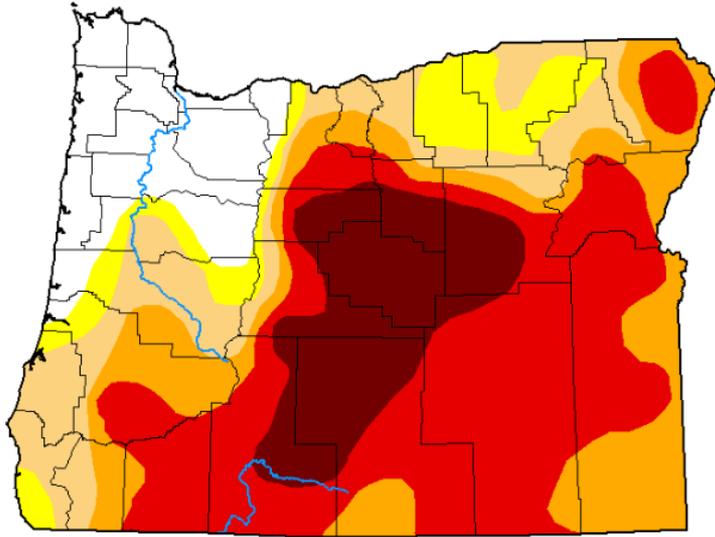


# Our Commitment

- **Safety** - we are dedicated to the safety of our customers and communities we serve
- **Objective** - identify and implement strategies to limit the risk of catastrophic wildfires, improve resiliency, and comply with the requirements established by regulators.
- **Improvement** - Our WMP is intended to be iterative and improved upon each year
  - Include industry best practices and a holistic and prudent strategy to mitigate risk

# Fire Season Recap – Oregon

## US Drought Monitor



**Intensity:**

-  None
-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

Climate experts predict ‘tough times’ ahead as drought conditions continue



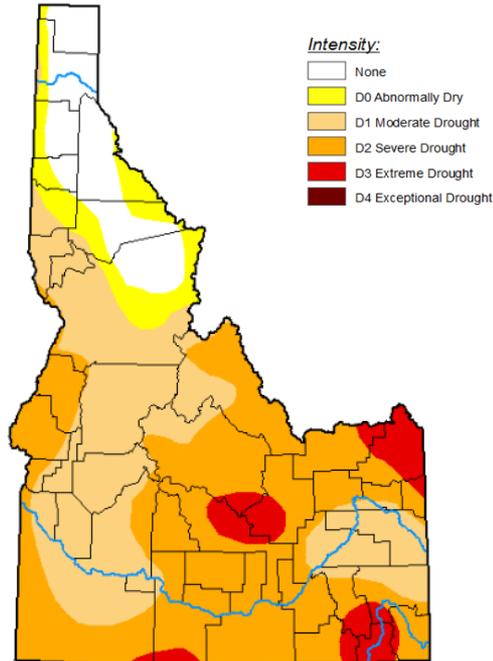
By [Monica Samayoa](#) (OPB)  
March 3, 2022 7:22 p.m.

Central and Southern Oregon are bearing the brunt of an extensive drought that could bring early wildfire and more water shortages this summer.



# Fire Season Recap – Idaho

## US Drought Monitor



## Above average precipitation in April and May quells some fire concern in Idaho

None of the fire experts I spoke with is upset about the later projected starts for the season, but all do worry it could cause residents to get relaxed



Image of Piney Fire courtesy of Idaho Fire Information (KMVT)

By [Zach Bruhl](#)

Published: Jun. 7, 2022 at 4:55 PM MDT



# Fire Potential Index (FPI)

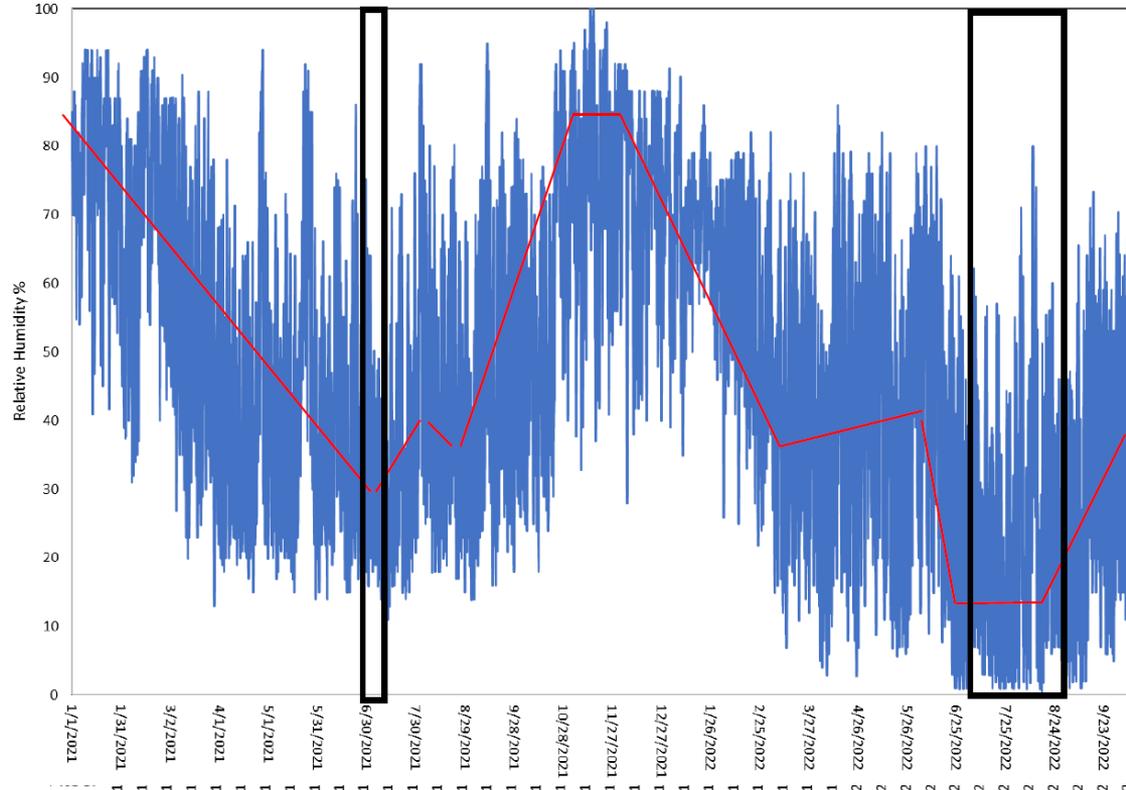
- Forecasting is performed daily across the service territory
- Key to gaining situational awareness
- Index is determined by:
  1. Fuel Type – 5 Points
  2. Moisture Content – 5 Points
  3. Weather Conditions – 6 Points
- **Green:** FPI score of 1 through 11
- **Yellow:** FPI score of 12 through 14
- **Red:** FPI score of 15 through 16



# Fire Weather Summary

- More days with Red FPI
- Extended period with single digit humidity levels
- Stopped planned work 6 times
- Record number of days above 100 degrees
- Climate changes is contributing to 1/3 additional day added to fire season each year

KONO - 2021-22 Hourly Relative Humidity



# Main Areas of Focus in 2022

- Public Safety Power Shutoff (PSPS)
- Public outreach and engagement
- Exploring new technology and innovations to reduce wildfire risk
- Executing and carrying out mitigation activities



# Public Safety Power Shutoff Program

- Completed prior to fire season
- Processes and procedures
- Operational plans
- Field Observer program
- New communication system
- Website updates
- Two functional exercises
- Public meetings and outreach



# Community Outreach and Engagement

- First week of November
- Seven meetings in Eastern Oregon
  - Ontario
  - Halfway
  - Huntington
- 27 attendees
  - Local fire chiefs
  - Emergency managers
  - ODOT
  - General public
- Received useful feedback



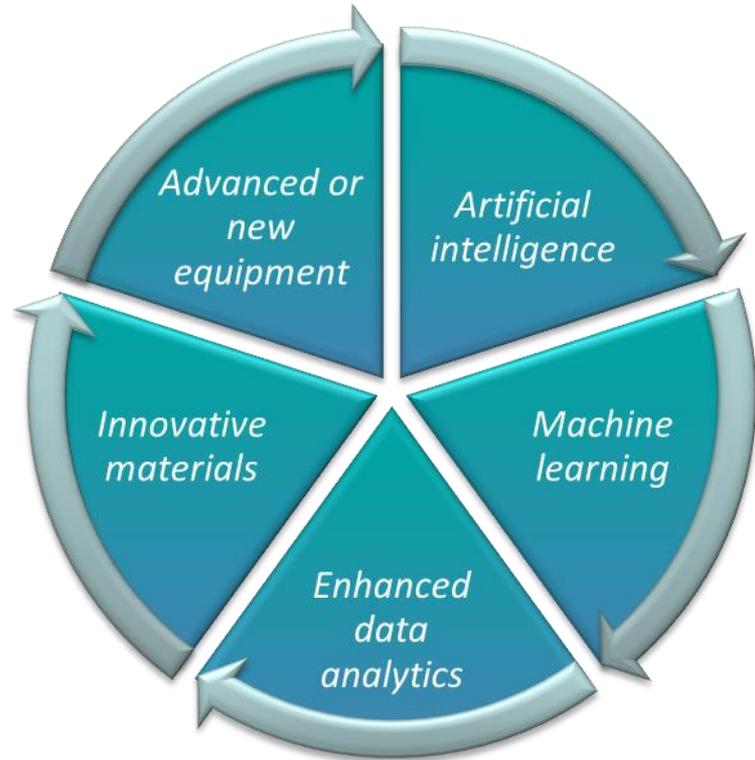
# Community Engagement Feedback

- Timing of the meetings should coincide with fire season
- Interest in collaborating on risk maps
  - Baker county
  - Halfway
  - Consequence
- Partnering with Firewise efforts
- General public
  - Happy and appreciative
  - Concerns over PSPS and risks



# Technology and Innovations

- Objective: to explore new technology and innovations to reduce the risk and impacts of wildfires
  - Benchmarking
  - Over 30 vendors
  - Collaborated with EPRI
  - Developed a roadmap
  - Began two pilots in late 2022



# Roadmap

- Six-year outlook
  - Immediate priority
  - Near-term program
  - Monitor
  - Visionary
- 20 different focus areas
  - Asset Inspection
  - Situational Awareness
  - Vegetation Management
  - Risk Management
  - Hardware and Equipment

Idaho Power Wildfire Technology Roadmap

Legend: Immediate Priority (Grey), Near-Term Program (Blue), Monitor (Light Blue), Visionary (Yellow)

Timeline: 2022 (Today), 2023 (Tactical), 2024-2026 (Strategic), 2027-2028 (Strategic)

Area of Focus	Technology	2022	2023	2024	2025	2026	2027	2028
Asset Inspection	Satellite, Drone, and Aircraft Inspections			Re-Examine Technology and Benefits	Conduct Pilot	Incorporate Advanced Inspections into WMP		
	Incorporate Artificial Intelligence and Machine Learning					Explore and Incorporate AI and ML into defect detection		
Situational Awareness	Line Monitors		Develop implementation plan for Line Monitors in WRCZ	Expand the use of line monitors for WRCZs, incorporate fault analytics into WMP assessments for Red/Red events				
	Sensors				Re-examine sensor technology and benefits	Pilot sensors that hold value and incorporate into WMP		
	Cameras	Build partnerships in 2022, identify opportunities for tower installations	Pilot cameras and report on benefits	Expand the use of cameras into WMP			Work with vendor to incorporate line monitors/fault locating into camera detection	
	Communications	Map communication capabilities for all reclosers WRCZ	Complete buildout, including satellite trial					
	Risk Maps		Explore benefits and products for performing in-house modeling	Incorporate new modeling software and update risk zones annually, incorporate into PSPS program, and model past the behavior to calibrate models				
	Pole loading modeling		Conduct pilot in 2023 in WRCZs, analyze benefits, determine path forward	Complete pole loading modeling assessment in WRCZ				
Vegetation Management	Satellite and aerial imagery	Scoping, deliverable, key metrics, and begin pilot with AI Dash and BIM	Begin annual program for encroachment issues, hazard tree detection, O&M reductions, contractor management					
	Vegetation Database and Analytics		Scoping, benefits, and financial analysis; develop dataset and analytics to predict tree growth, fall-in	Perform scoping, develop dataset and analytics to predict tree growth, fall-in, based on species, growth, terrain, and weather				
	Advanced Relay Protection		Re-examine solutions offered by GE and SEL, identify benefits and start testing at recloser level	Testing of HF, Line Down, early fault detector	Testing and pilot of advanced relay capabilities at the breaker level	Implementation of all breakers and reclosers in WRCZs		
Risk Management	Fault Locating and Notification					Overlap with Grid Modernization - as the Fault Locating system is developed, incorporate into WMP, and notifications for public safety partnership districts		
	Fault Heat Map		Develop visual heat map of faults for WRCZ and begin to use it in prioritization	Conduct periodic checks of fault locations in WRCZs and incorporate into WMP strategies and prioritization				
	Ignition Characterization		Perform analytics of faults to determine ignition characteristics					
	Risk Maturity Framework		Through research and collaboration, develop a risk maturity framework to determine the extent of mitigation needed for IPC's service territory. Findings will be used for Regulatory purposes and to identify changes in WMP risk reduction practices					
	Strategic Undergrounding		Analysis and standard development, pilot back lot line construction in 2025 to realize complexities and costs	Expand undergrounding into WMP; reduce overall risk and remove zones from Red or PSPS areas		Re-examine benefits and costs		
	Fuel reduction	Continue building partnerships to reduce wildfire risk in the Boise Fire Shed	Analyze risk reduction of fuel management (thinning, tree break vegetation, perform pilot of fuel reduction/veg management)	Conclude pilot, quantify benefits, and decision to expand program		Expand fuel reduction program		
Hardware & Equipment	Covered Conductor	Develop pilot scope deliverables, and possibly start pilot in training yard in Q4	Continue pilot in training yard and expand to feeder level. Quantify risk reduction and benefits for WMP execution	Incorporate covered conductor into WMP strategy				
	Wood Pole Substitute		Identify steel or composite poles for high priority installations	Pilot in 2024	Incorporate into WMP construction standards			
	Helicopter Multispectral Cameras		Re-assess the benefits and challenges, create business case	Install and conduct aerial inspections using multispectral cameras				

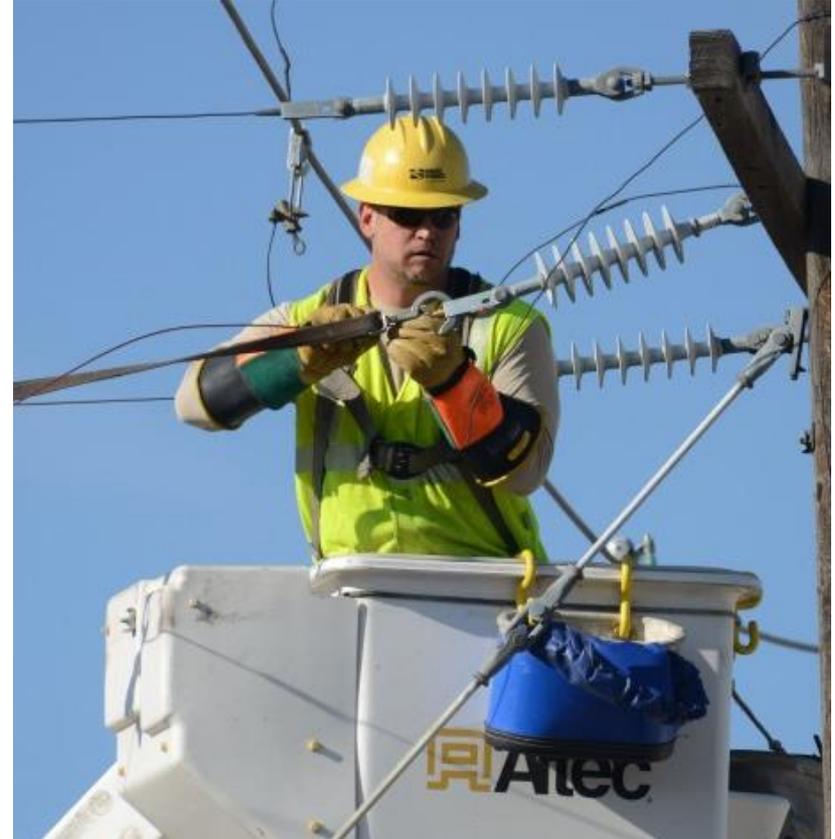
# Mitigation Activities

- Inspections
- Vegetation Management
- Distribution Hardening
- Transmission Hardening



# 2022 Mitigation Progress

- **Wildfire Focused Inspections**
  - Pre-fire season inspections in red risk zones – 100%
  - Infrared inspections – 123%
- **Vegetation Management**
  - Red and Yellow risk zone patrols – 100%
  - Red and Yellow risk zone pruning – 100%
  - 631 audits performed – 60%
  - 174 hazard trees pruned
  - 118 hazard trees removed
  - 3-year cycle – 70%
- **Distribution System Hardening**
  - 49 miles – 100%
  - Approximately 2 miles of overhead to underground conversions
- **Fire Mesh**
  - 1,082 transmission poles – 120%
- **Weather Stations**
  - 5 new installations – 100%



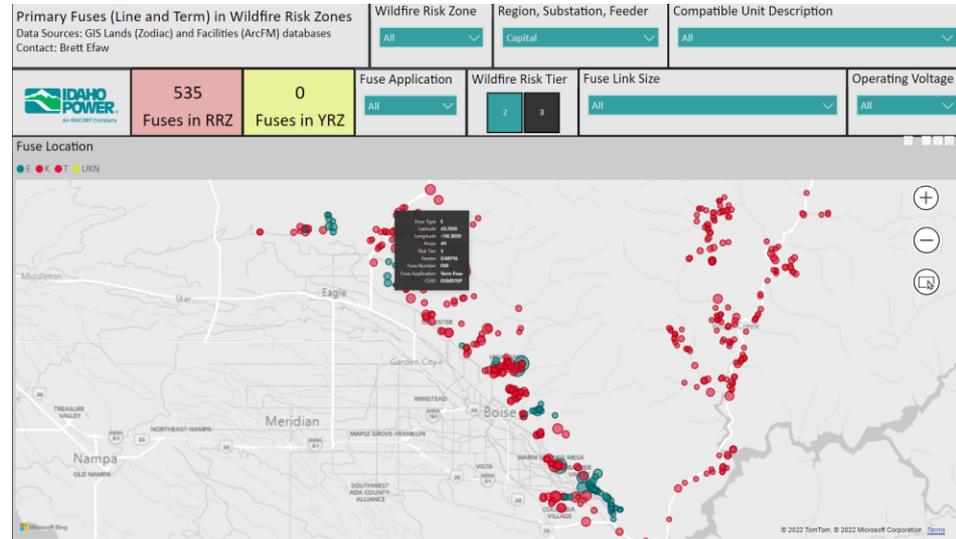
# Feeder Segmentation

- Segmentation – installation of protection devices (reclosers) at the edge of wildfire risk zones to help isolate customers outside of those zones
- 17 protective devices were installed or relocated prior to fire season
- Includes communications



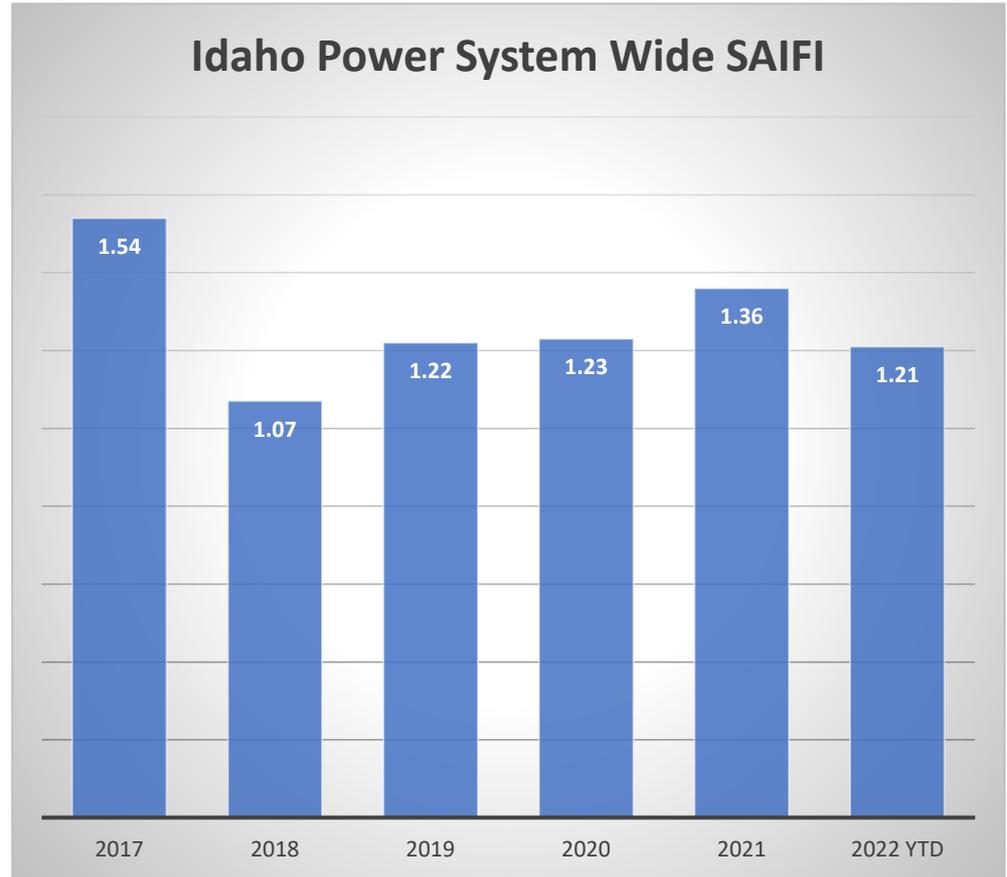
# Metrics to Gauge Effectiveness

- Undertook steps to identify metrics to gauge the success of programs and activities
- Three metric areas:
  - Improved reliability
  - Reduced outages (specific drivers of ignition)
  - Monitoring progress and setting program targets:
    - Inspections
    - Veg Management
    - Circuit Hardening

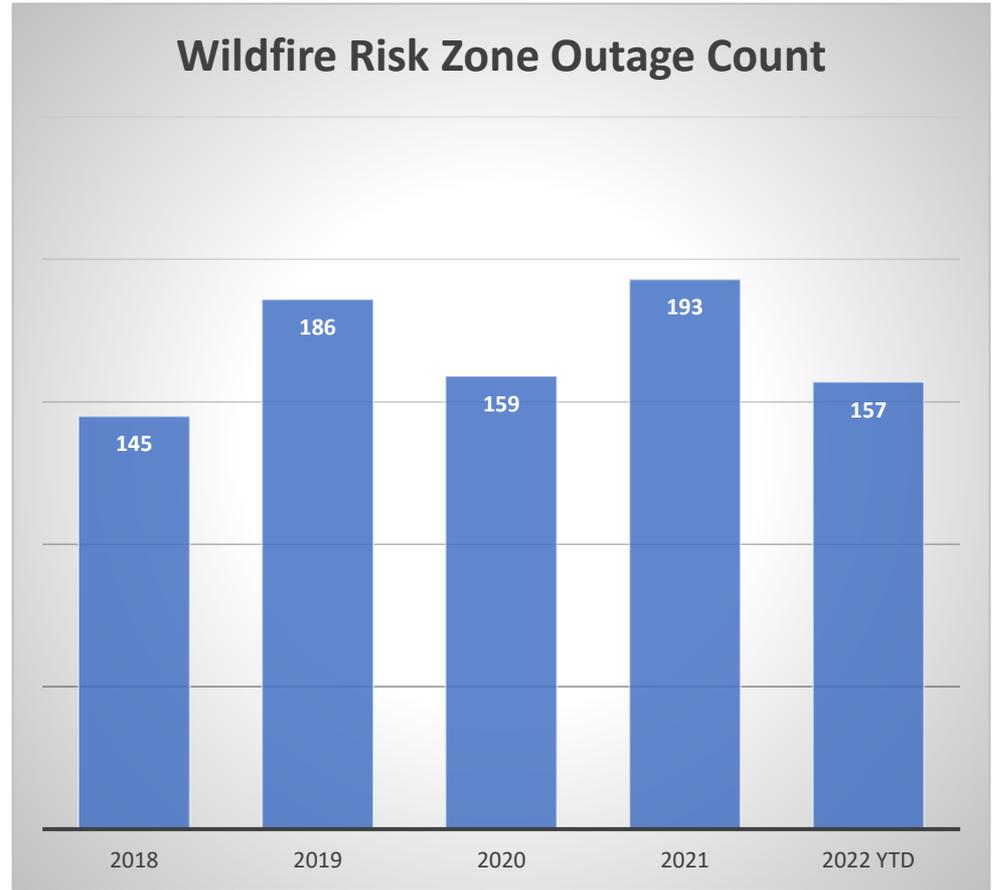


Expulsion fuse changeout Dashboard

# System Reliability



# Wildfire Risk Zone Outages



# Drivers of Potential Ignitions

1. Tree/Vegetation
2. Equipment Failure
3. Loose Hardware
4. Corrosion
5. Contamination
6. Birds and Small Animals



# Outage Dashboard



**1,038**  
Outages

**229**  
CAIDI

Fuse Application

All ▼

Wildfire Risk Tier

2

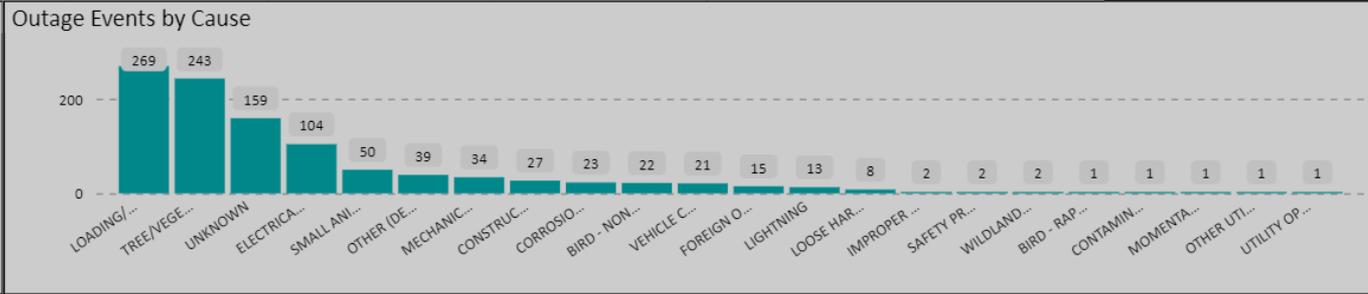
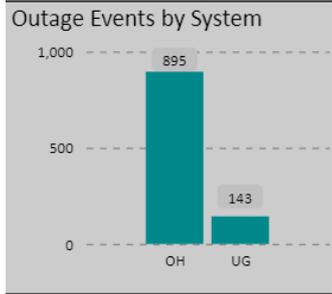
3

Fuse Link Size

All ▼

Operating Voltage

All ▼



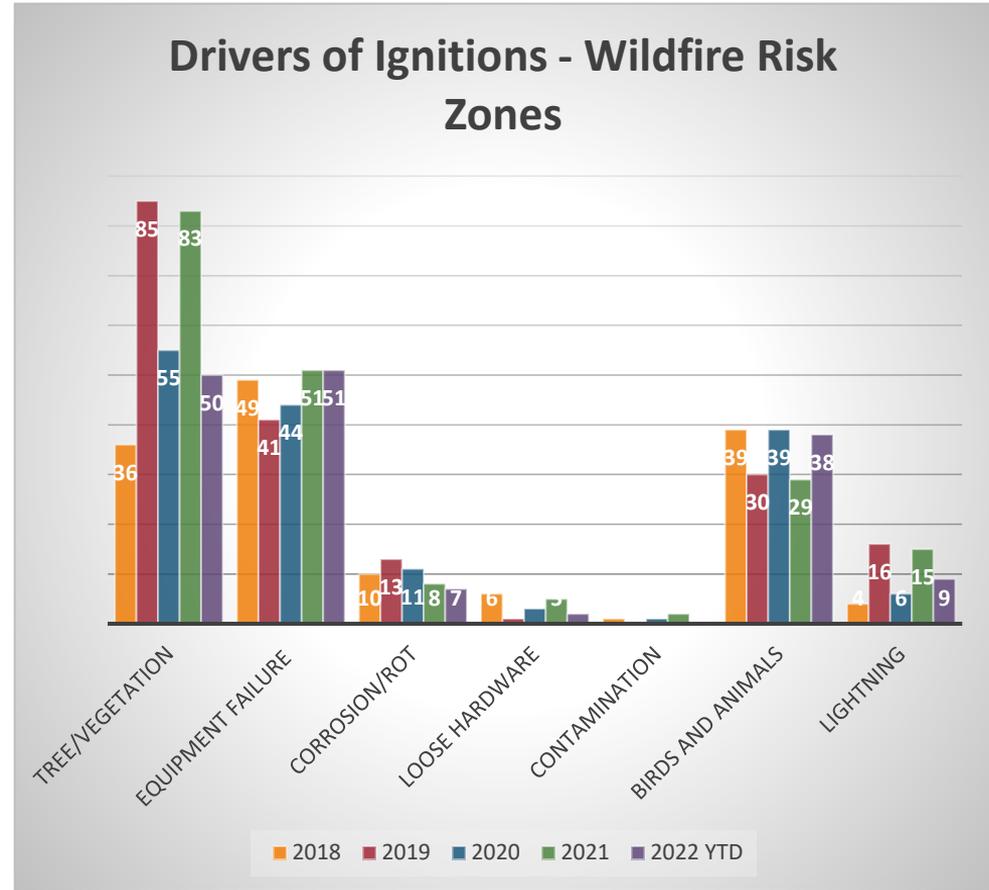
### Fuse Outage Summary

Device Number	GISO Number	Label	Outages	CAIDI
EKRT41F141	259108	40K	17	215
CTWT11F10	4736117	80K	11	176
EKRT41F555	208893	15K	11	303
EKRT41F214	230143	15K	10	451
EKRT41F239	4757784	40K	10	174
EKRT41F268	231824	20K	9	277
HBND41F422	1551826	20K	9	138
LKFK41F720	406188	50K	9	272
CTWT11F26	4306294	25K	8	192
EKRT41F127	4238901	10K	8	297
EKRT41F263	231150	30K	8	160
EKRT41F266	231533	10K	8	108

### Fuse Outage Details

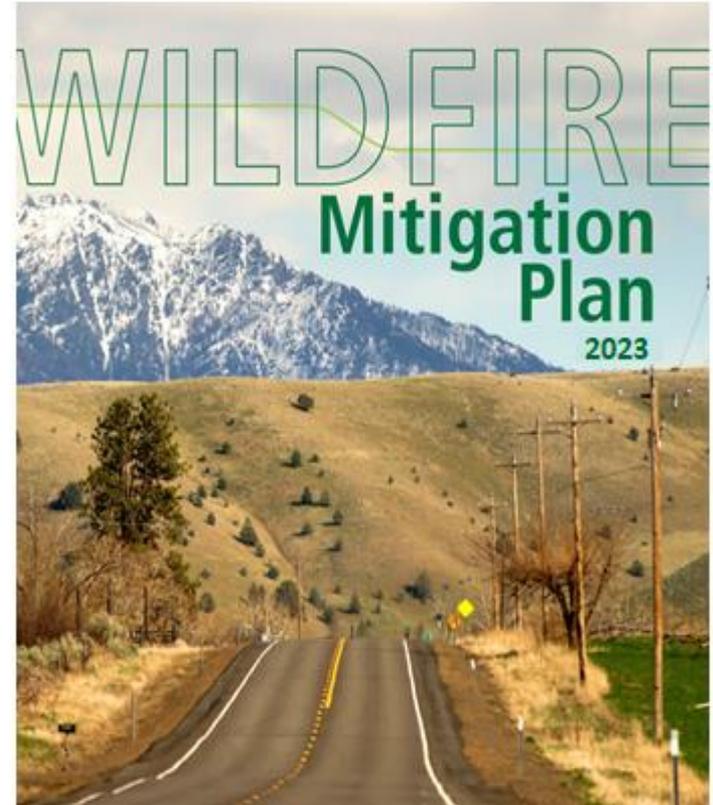
OMS Incident	Begin Date/Time	Device Number	System	Cause	Failure
846719	2017-11-11 09:38:57 AM	PNUF42F75	OH	UNKNOWN	SWITCH - MANUAL
846817	2017-11-12 04:21:09 PM	EKRT41F214	OH	TREE/VEGETATION	LINE CONDUCTOR - TENSIONED
847290	2017-11-15 10:40:59 PM	EKRT42F62	OH	ELECTRICAL FAILURE	INSULATOR
847292	2017-11-15 11:44:18 PM	KCHM14F160	OH	LOADING/UNLOADING (SNOW, ICE)	LINE CONDUCTOR - TENSIONED
847407	2017-11-16 11:02:37 AM	KCHM13F232	OH	LOADING/UNLOADING (SNOW, ICE)	LINE CONDUCTOR - TENSIONED
847477	2017-11-16 06:19:34 PM	DIXI31F191	OH	UNKNOWN	UNKNOWN

# Wildfire Risk Zone – Drivers of Possible Ignition



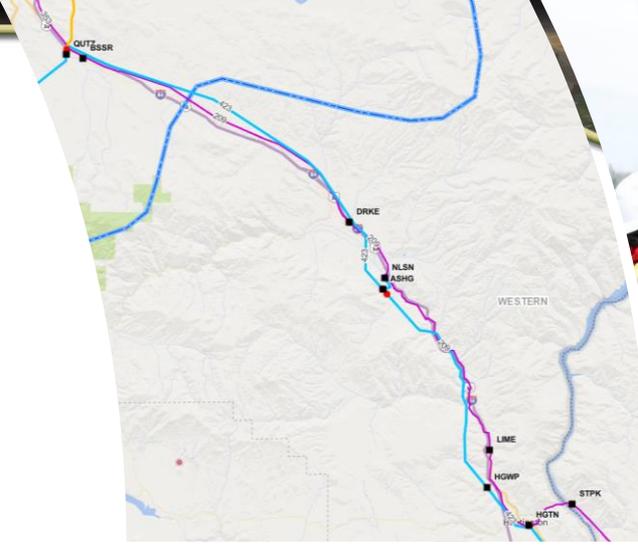
# Summary of Changes for 2023

- Executive Summary
- Oregon update included in appendix
  - Staff's recommendations
- Re-perform risk modelling
- Incorporating new technology
- Improve metrics and performance measures
- Strategic undergrounding initiative
- Adjustment to FPI forecasting zones
- Adjust pre-fire season inspection requirements



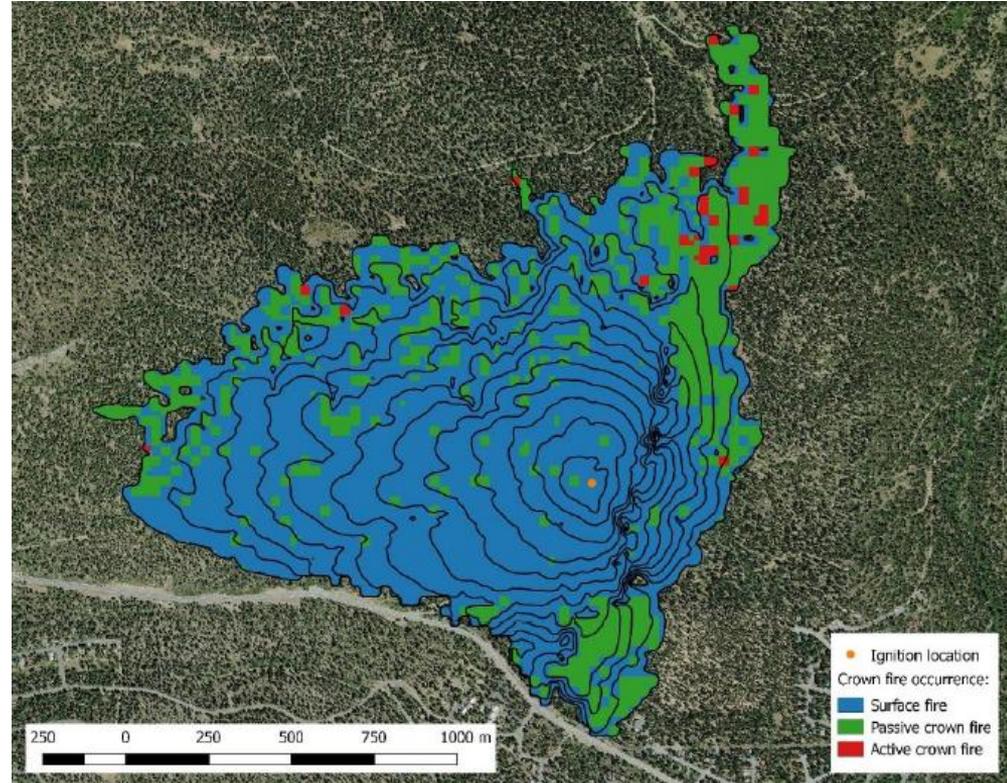
# 2023 Planned Work – Oregon

- Fire Mesh Wrap
  - 187 wood poles
- Transmission line rebuild project
  - Huntington to Quartz 138 kV line
  - 40 miles
- Annual vegetation patrols
- 3-year tree pruning cycle



# Risk Modeling

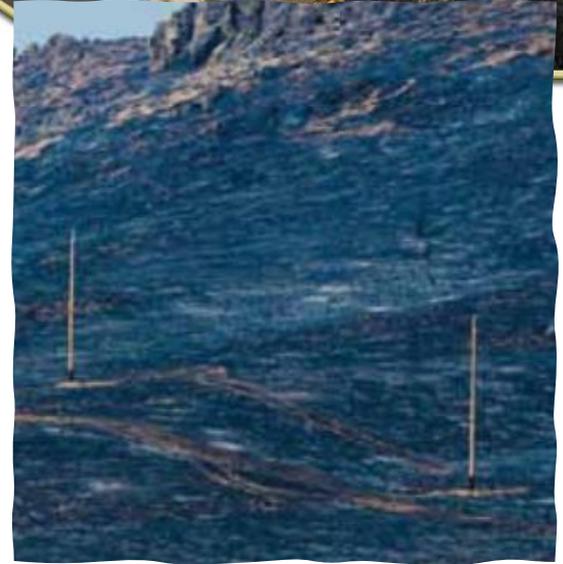
- Improve risk modelling
  - 2020 Census data
  - Suppression difficulty
  - Chinook winds
  - Fire history
  - Land use
  - Cattle/ranch
  - Reassessment will include B2H



Example of fire spread simulation for individual fire ignition

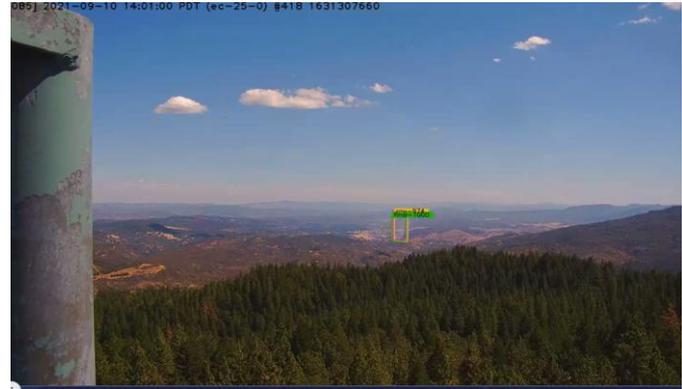
# Vegetation Management

- Satellite Imagery
  - Identify encroachment to powerlines
  - Identify hazard trees
- Fuel Treatments
  - National Forest Foundation
  - Forest Service
  - Idaho Department of Lands
  - Bureau of Land Management
- Herbicide – minimize loss of structures by ground clearing and sterilizing
  - Working to gain approval through the Oregon BLM



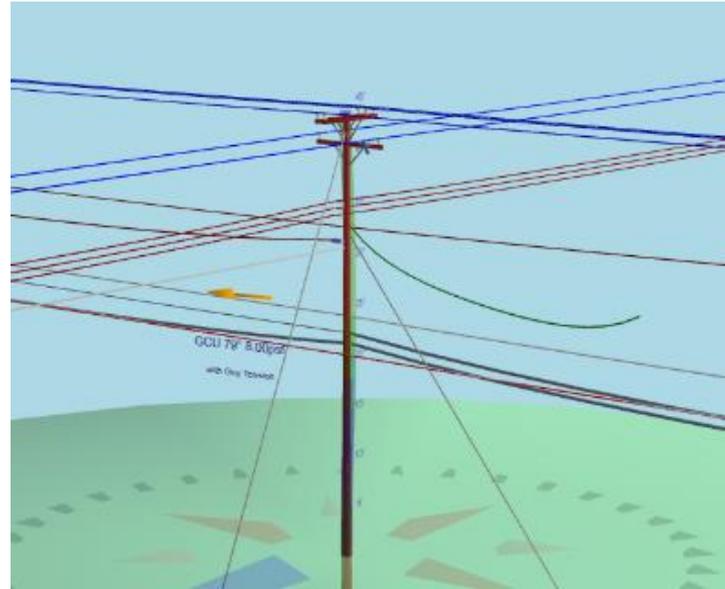
# Early Fire Identification

- Exploring the use of fire detection cameras
- Detects smoke up to 30 miles and notifies emergency responders
- Locations include both Idaho and Oregon
- Potential overlap between the two states



# Mitigation Pilots

- Covered Conductor
  - 2023-2024
- Pole Loading
  - 2023
- Fault Location using Line Monitors
  - Part of Grid Modernization
- Underground conversion



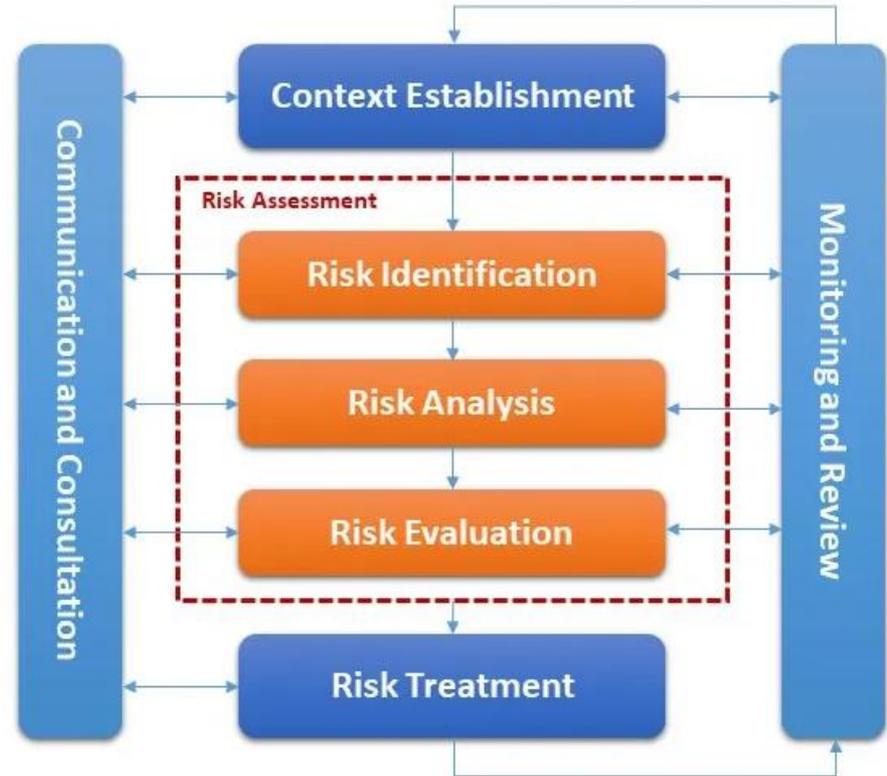
# OPUC WMP Activities

- Docket No. UM 2209
- Staff Recommendations from April and August 2022
  - Cost/Cost Allocation
  - Risk Framework
  - Staff recommendations based on IE report



# Risk Framework – ISO 31000

- Conducted benchmarking
- Training
- Principles
  - Guide effective manage risk
- Framework
  - Integration
- Process
  - Iterative practice of identifying, analyzing, and treating risk
  - Continuous improvement

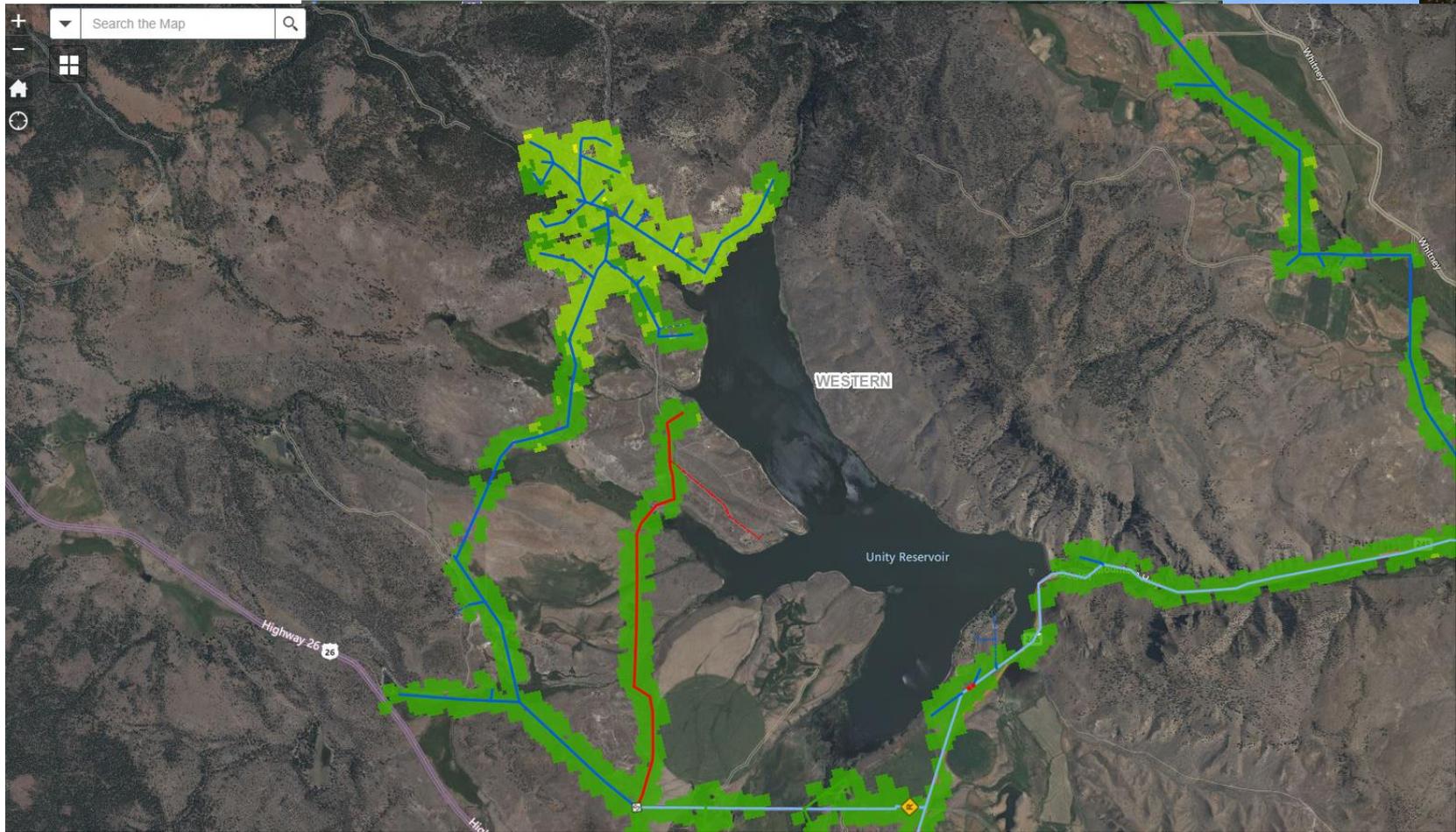


# Theme: Risk Analysis

## (Recommendations 1-4)

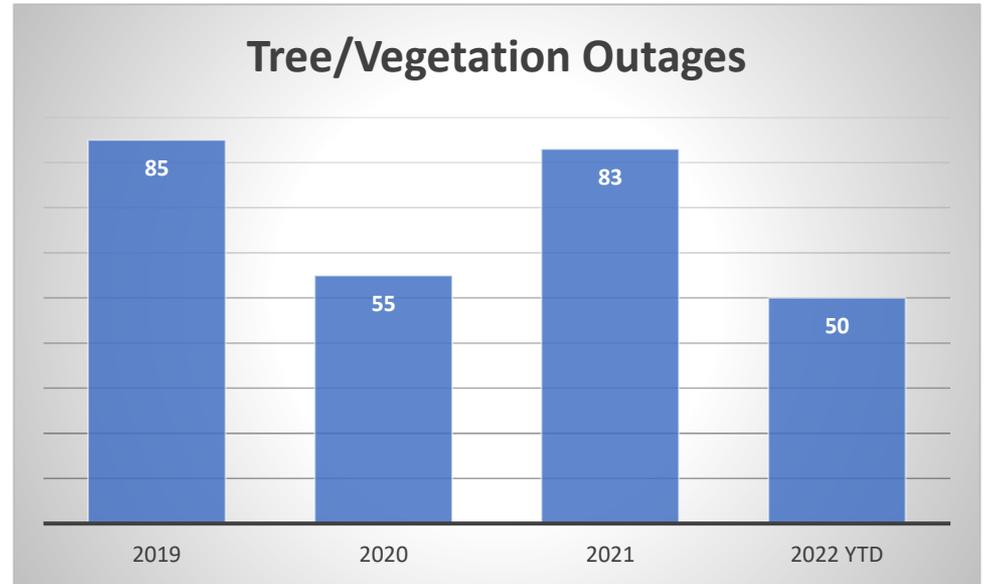
- Adding a narrative for risk methodology
- Overview:
  - Consultant that specializes in wildfire modelling and fire science
  - Computer simulations were used to determine high risk areas
  - The simulations considered:
    - Location of power lines
    - Fuel type & moisture content
    - Historic weather models
    - Structures





# Theme: Assessing WMP Effectiveness (Recommendations 5-9)

- We will measure the overall effectiveness of the WMP by:
  - Fault analytics
  - Progress tracking
  - Setting targets
- More time is needed
- To what degree previous year's WMP have reduced the risk of utility caused ignitions?



# Theme: Lessons Learned

(Recommendations 10-14)

- Advancements in risk modelling
  - Consequence considerations
- PSPS lessons
- Public involvement and collaboration
  - Town hall style w/ agencies and Firewise
- Fire Potential Index communication and timing
- Learnings and integration of new risk framework



# Communications and Outreach

## (Recommendations 15-16)

- 2023 WMP will include examples of messaging
- Two communication processes
  - Broad communication
  - Targeted PSPS zones
- Methods of outreach
  - Text, voice, and e-mail
  - Postcards and letters
- Metrics
  - Wildfire Safety landing web page
  - Radio and print ads
  - 1,443 hits



**Providing SAFE, RELIABLE POWER IN WILDFIRE COUNTRY**

Wildfire can be devastating to families, businesses and the environment. It can also cause power outages. Idaho Power is investing in grid improvements to protect the grid from wildfires and reduce the chance of starting fires. We're also:

- Upgrading poles, conductors and switches.
- Increasing equipment inspections by ground and air.
- Wrapping wood poles with fire-resistant mesh.
- Adding spark prevention equipment to power lines in highest-risk areas.
- Monitoring and clearing vegetation around power lines.
- Treating ground around wood poles to keep vegetation from becoming fuel for fires.
- Conducting weather forecasts during wildfire season to monitor fire risk and change our operations if necessary.

Our Wildfire Mitigation Plan assesses wildfire risk in every corner of our service area to make sure we're operating in a safe, responsible manner. For more information, visit [idahopower.com/wildfire](http://idahopower.com/wildfire).

**What you can do**

Here are ways you can help protect our communities from wildfire:

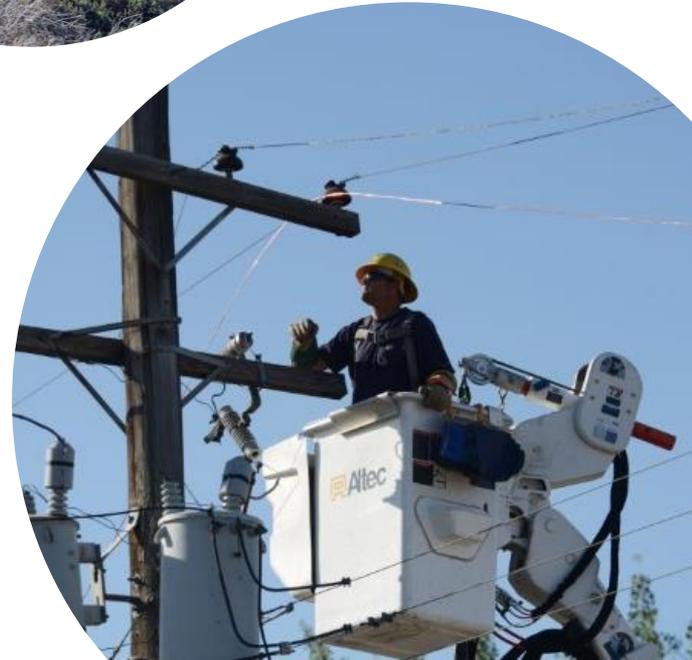
- Monitor and obey fire restrictions.
- Use designated fire rings provided at campgrounds.
- Fully extinguish your campfire after use.
- Follow all firework laws and keep a hose nearby when lighting fireworks.
- Consider using glass ashtrays instead of cigarette butts.
- Never park or start a vehicle on dry grass.
- Keep trailer chains from dragging along roads.
- Check trailer tires for proper air pressure, and ensure the rubber is in good condition.
- Never throw cigarettes from vehicles.
- Obtain appropriate fire permits (depending on type and location of fire).
- Create a defensible space around your home.
- Have a power outage kit ready.

**Stay informed**

- Update your contact information at [idahopower.com/contactupdate](http://idahopower.com/contactupdate).
- Sign up for outage alerts at [idahopower.com/alerts](http://idahopower.com/alerts).
- Sign up for emergency alerts from local law enforcement, fire departments and your county.

# Asset Inspections and Vegetation Management (Recommendations 17-21)

- Including a table to clearly identify inspection and correction procedures for different Tier levels
- Including a table to more clearly delineate vegetation management practices by State and Tier level
- Fires that informed decisions for wildfire risk zones



# Wildfire Mitigation Expenses

(Recommendation 22)

- Additional information included in the supplemental filing
- Capital investments include:
  - Feeder hardening
  - Underground conversions
- Providing updated investment information based on 2023 work plan



# Forums for Learning

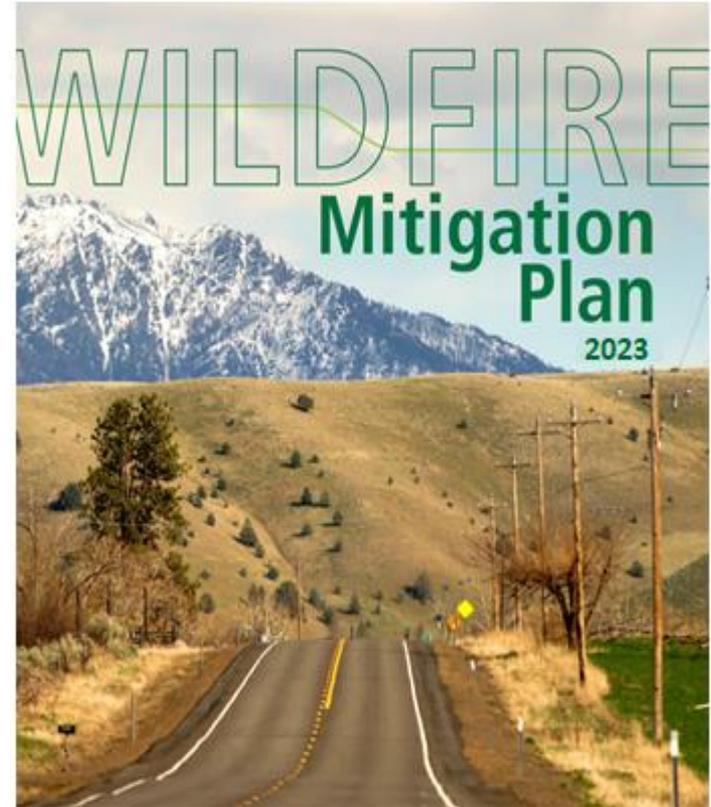
## (Recommendations 23-25)

- Participation in expert forums
  - Research, reports, studies used in analysis
  - Unique factors that influenced decisions
- Wildfire Detection Camera Strategy Working Group
  - Collaborative governance to establish and implement a statewide wildfire detection camera strategy
- Pacific Northwest Wildfire Working Group



# Challenges in Updating the WMP

- Feedback from stakeholders is to conduct annual meetings closer to fire season
- Timing of completing updates by end of year and incorporating feedback
- Time commitment of Public Safety Partners to engage in exercises each year



# Questions?

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