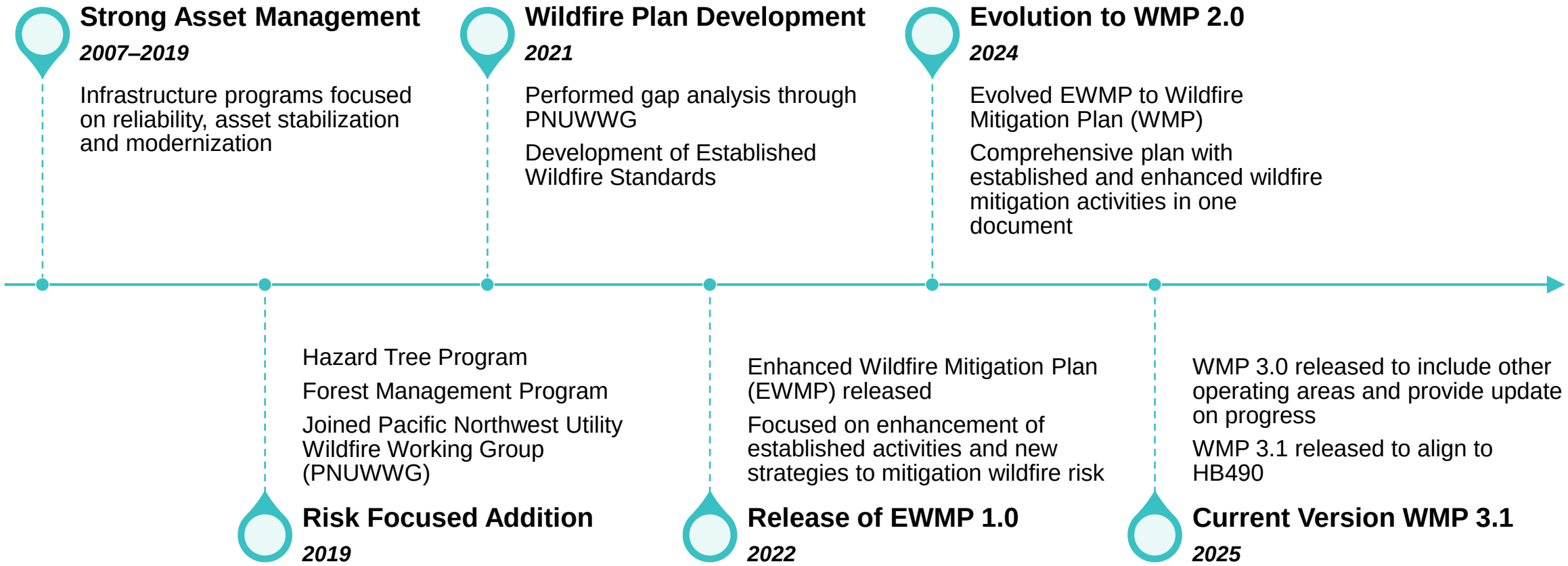
NorthWestern Energy's Wildfire Mitigation Plan

Agenda

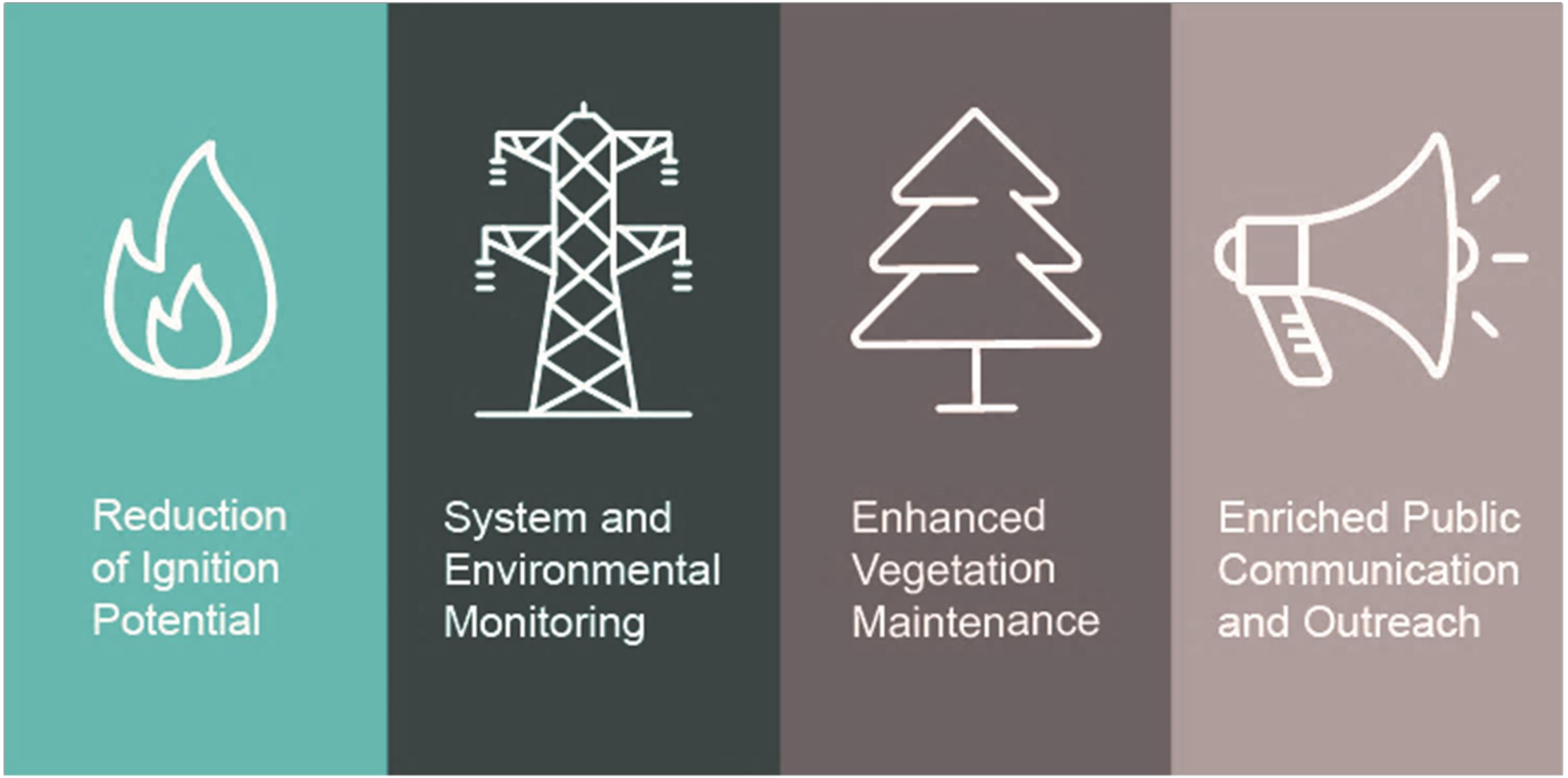
- Wildfire Mitigation Plan
- Wildfire Risk Modeling
- Wildfire Risk Informed Decision Making
- Managing Wildfire Risk (Now and Future)
- Public Communication and Outreach

Wildfire Mitigation Plan

NWE’s WMP Journey



WMP Objectives



Wildfire Mitigation Plan Summary

Wildfire Mitigation Plan Objectives

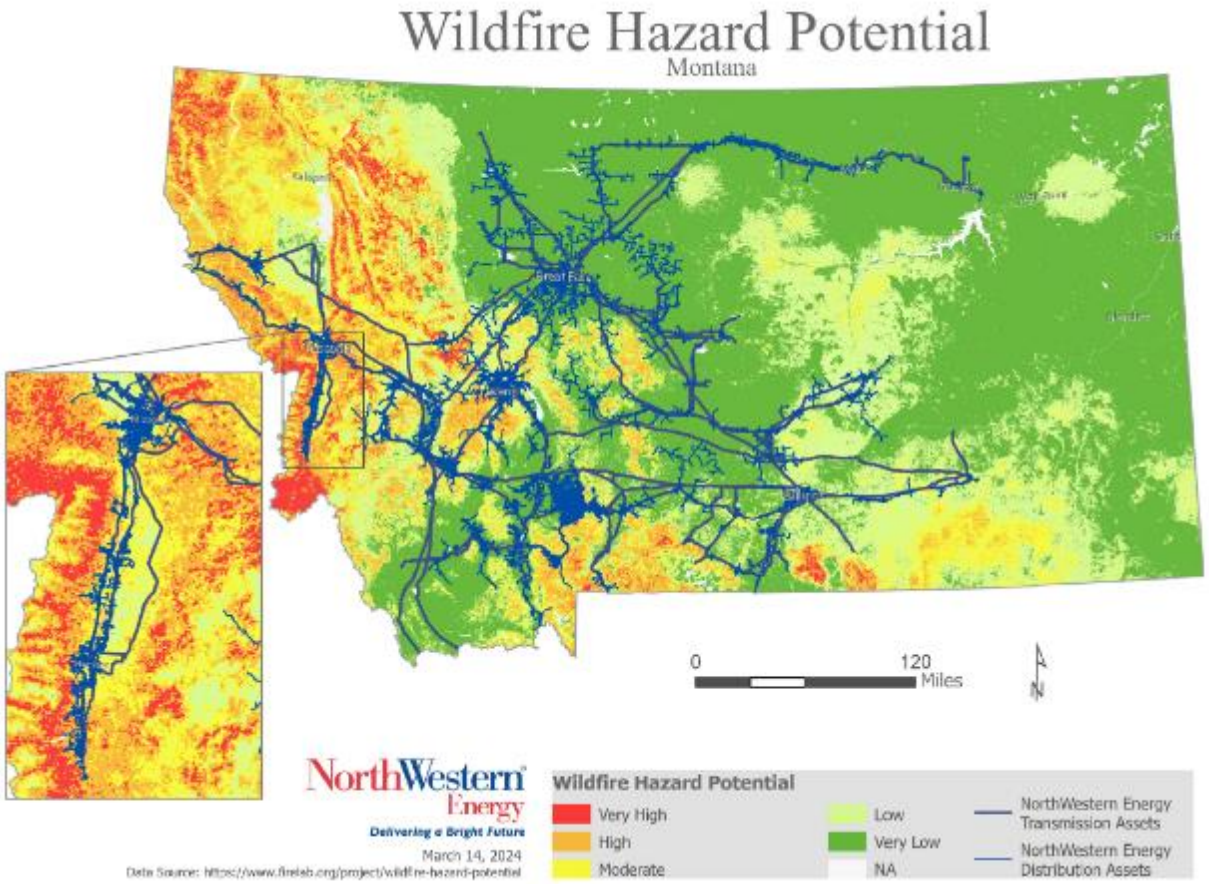
Wildfire Mitigation Plan Categories			**Reduce Ignition Potential**	**System & Environmental Monitoring**	**Vegetation Management**	**Communication and Outreach**
1	***Situational Awareness***	Monitoring of high risk zones with current forecasts to influence operational decisions				
2	***Operational Practices***	Adjusting operational practices based on current conditions and Investigation of system performance				
3	***System Preparedness***	Enhanced proactive maintenance, targeted grid hardening and deployment of technology with the focus of reducing ignition potential				
4	***Vegetation Management***	Proactive efforts to mitigate vegetation contacts, maintain healthy forests and decrease fuel loading				
5	***Communication & Outreach***	Improved communication and stakeholder outreach on wildfire mitigation efforts and response strategies				

NWE’s WMP Meets HB490 Requirements

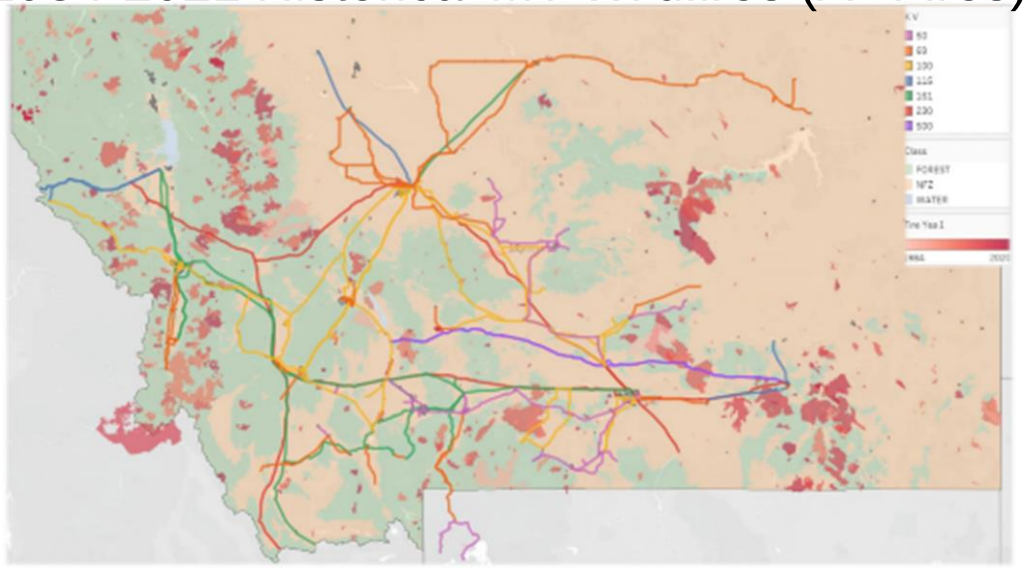
- ✓ Identify wildfire risk areas
- ✓ Inspection & operations strategies
- ✓ Vegetation management programs
- ✓ Facility upgrades & preventative measures
- ✓ De-energization & operations modification methods
- ✓ System restoration after de-energization
- ✓ Incremental cost estimates
- ✓ Community outreach & public awareness
- ✓ Coordination with state/local wildfire plans

Wildfire Risk Modeling Identifies Cost Effective Solutions

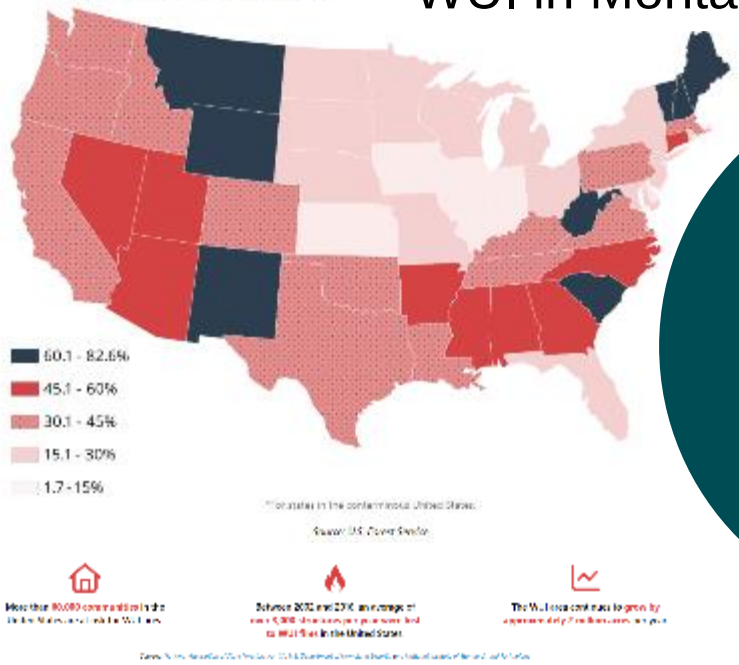
Identifying Risk



1984-2021 Historical MT Wildfires (All Fires)

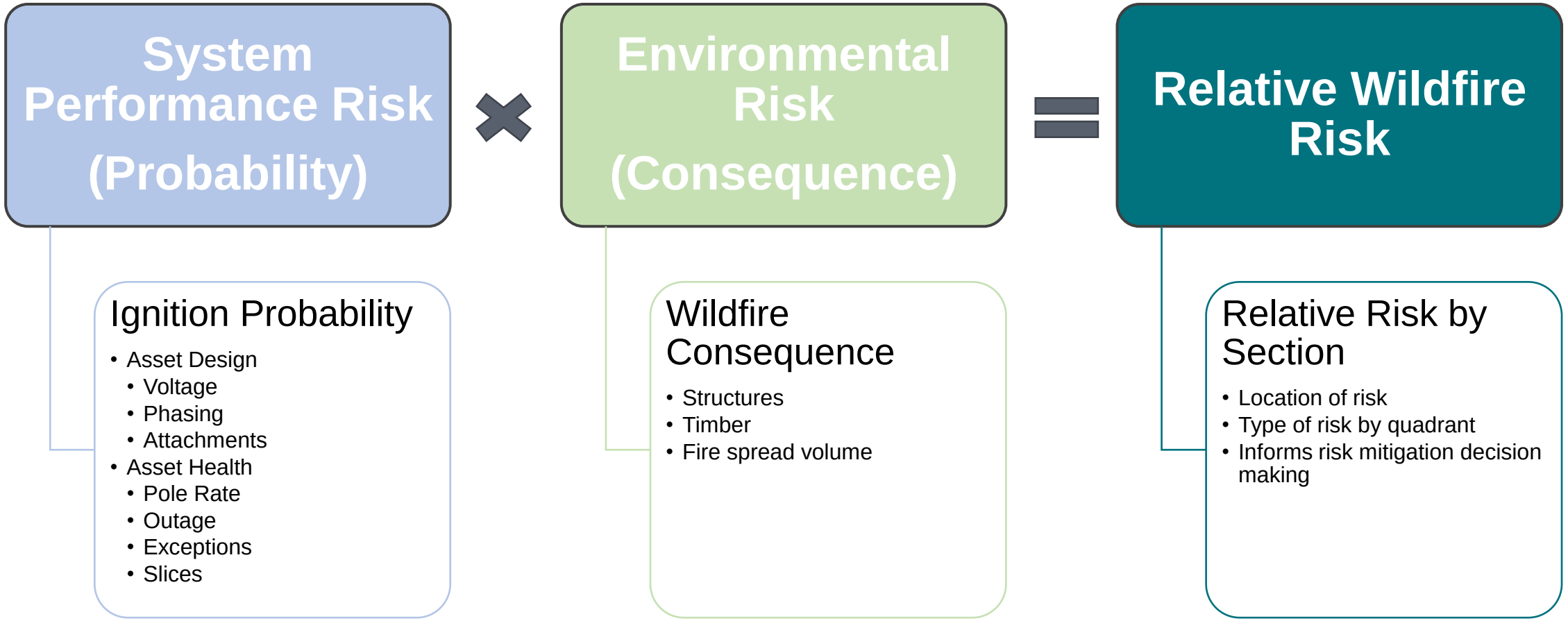


WUI in Montana

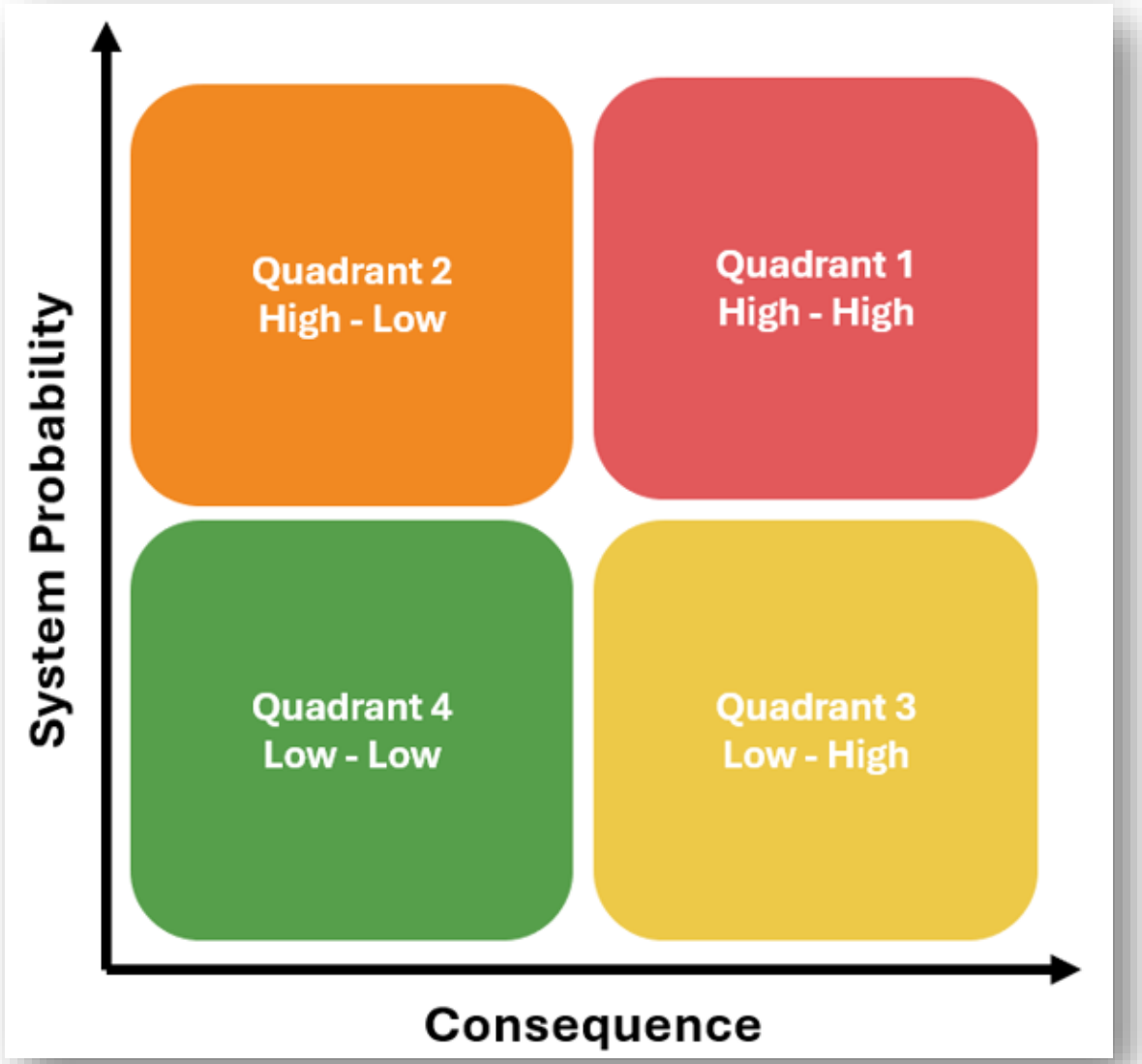


The Wildland Urban Interface (WUI) is the zone of transition between unoccupied land and human development. It is the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Infrastructure Resiliency Risk Modeling



Infrastructure Resiliency Model



High System, High Consequence

- Impacting System Risk
- All hardening strategies apply
- Maximum assessments
- Monitor Environmental
- Highest SA needs

High System, Low Consequence

- Impacting System Risk
- Most hardening strategies apply
- Maximum assessments
- Monitor Environmental
- Medium SA needs

Low System, High Consequence

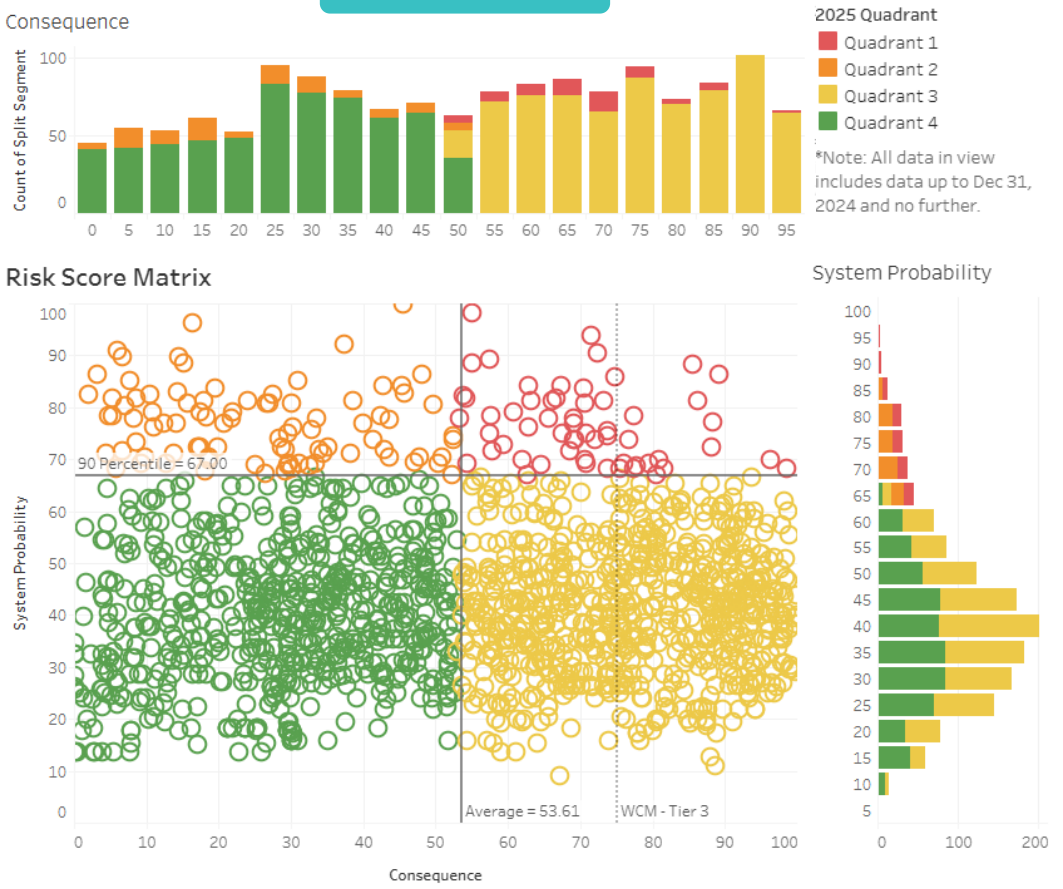
- Impacting System Risk
- Technology and Protection strategies
- Normal assessments
- Monitor Environmental
- High SA needs

Low System, Low Consequence

- Impacting System Risk
- Normal assessments
- Monitor Environmental
- Low SA needs

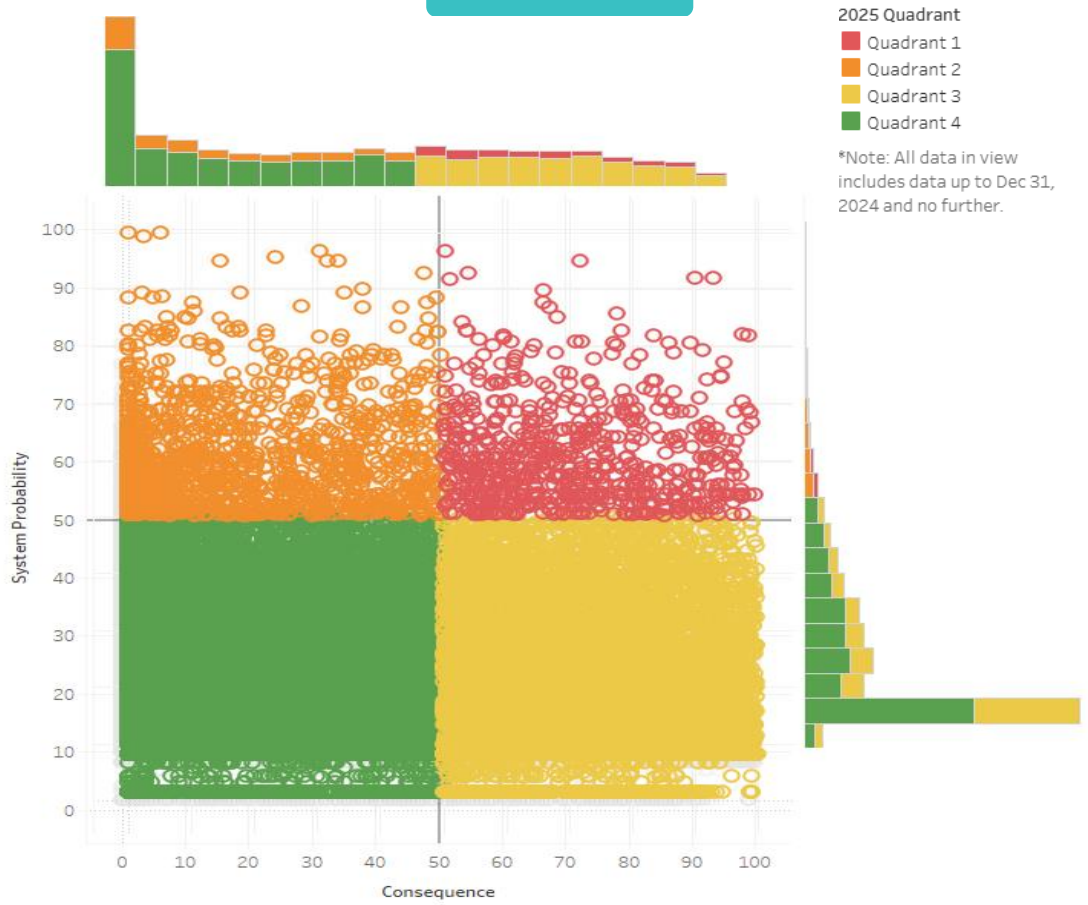
Mitigating Risk Quadrants (Transmission & Distribution)

Transmission



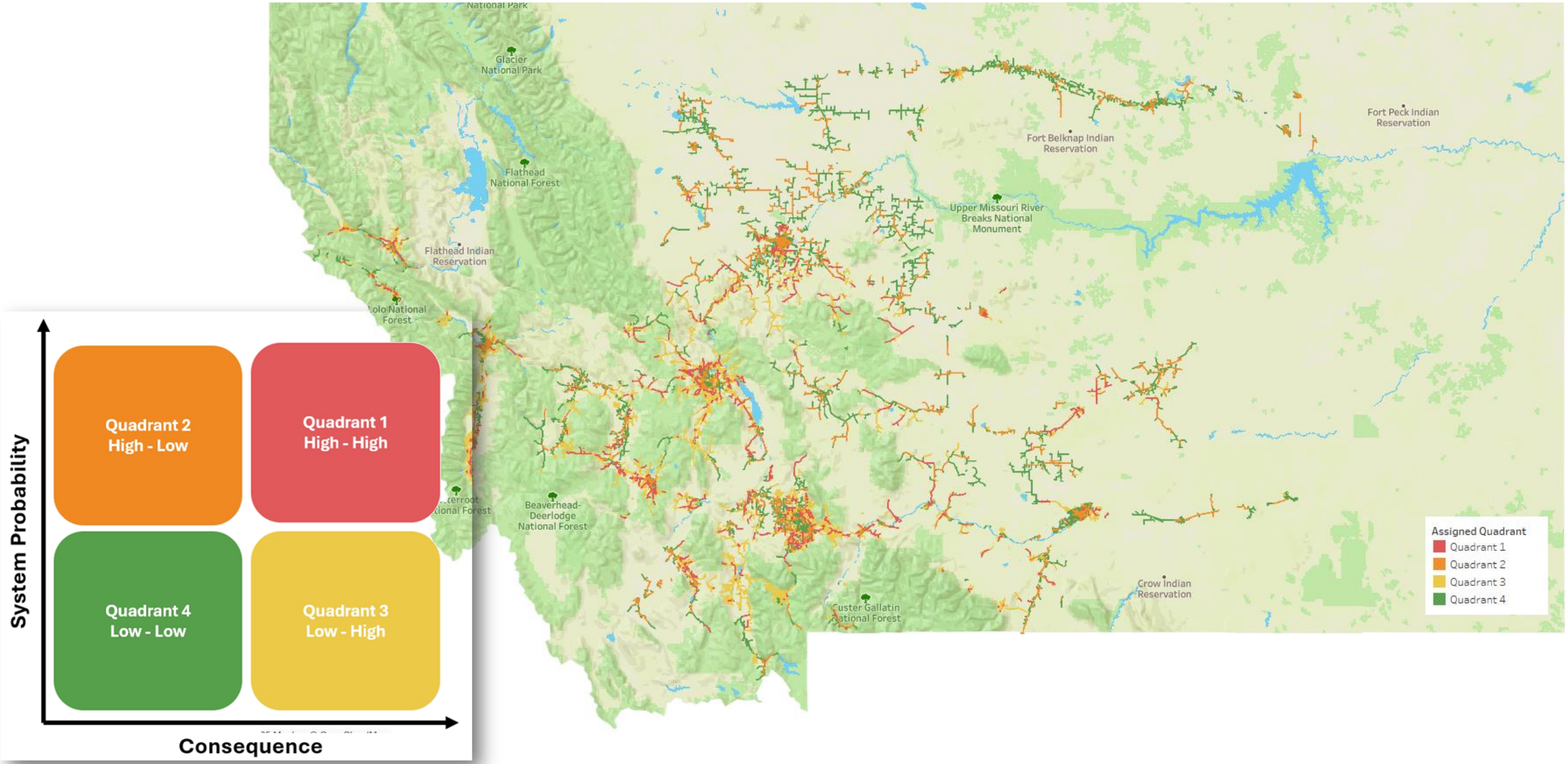
		% of Split Segments	Length (mi)	Split Segment Count
Quadrant 1	High System /High Consequence	3.94%	291	58
Quadrant 2	High System /Low Consequence	6.11%	443	90
Quadrant 3	Low System /High Consequence	48.10%	3,137	708
Quadrant 4	Low System /Low Consequence	41.85%	2,368	616

Distribution

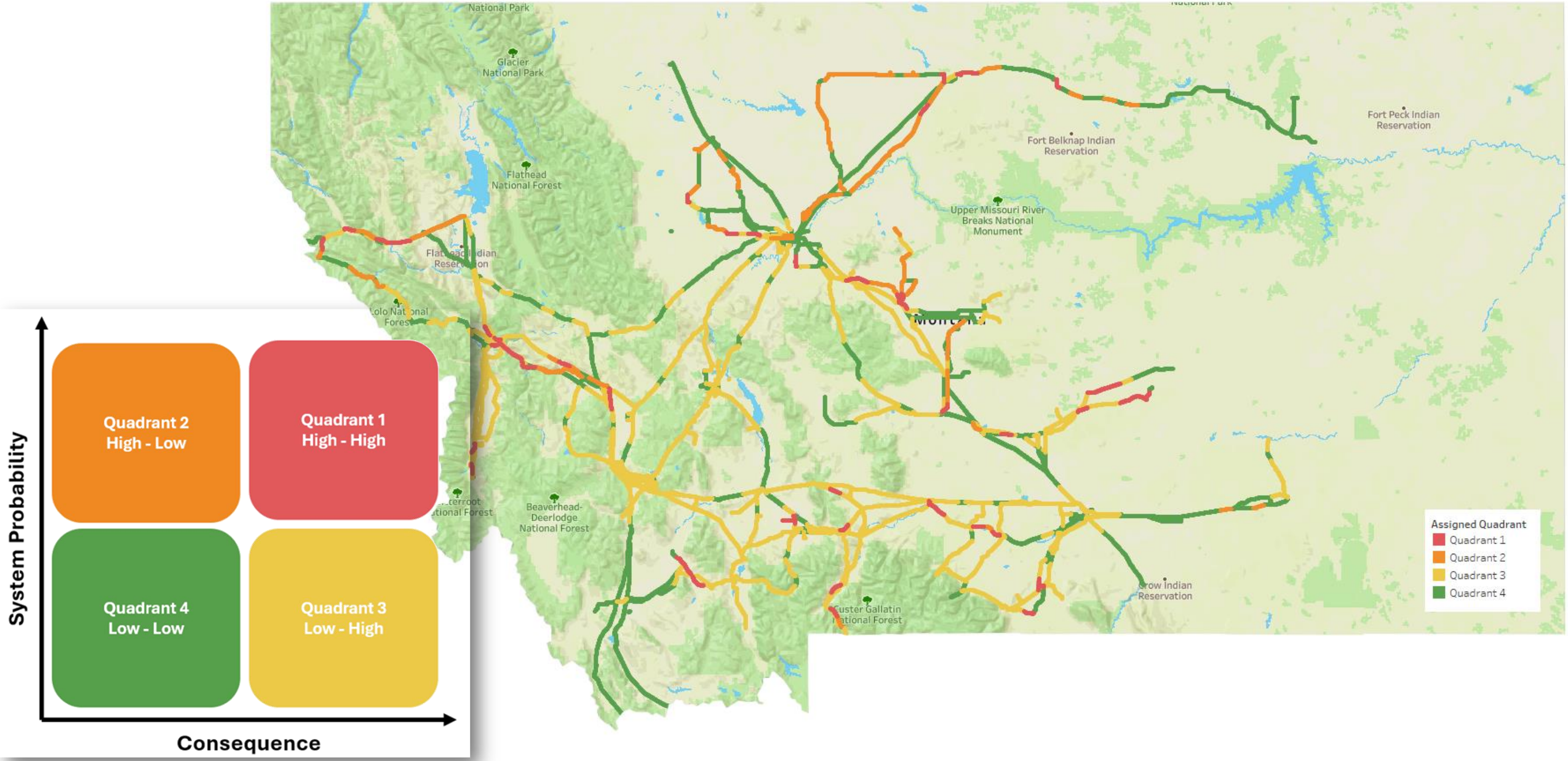


		% of System	Length (miles)	# of ESIDs
Quadrant 1	High System /High Consequence	1.84%	1,609	634
Quadrant 2	High System /Low Consequence	3.93%	2,629	1,350
Quadrant 3	Low System /High Consequence	32.71%	5,697	11,249
Quadrant 4	Low System /Low Consequence	61.52%	8,406	21,153

Wildfire System Risk - **Distribution**

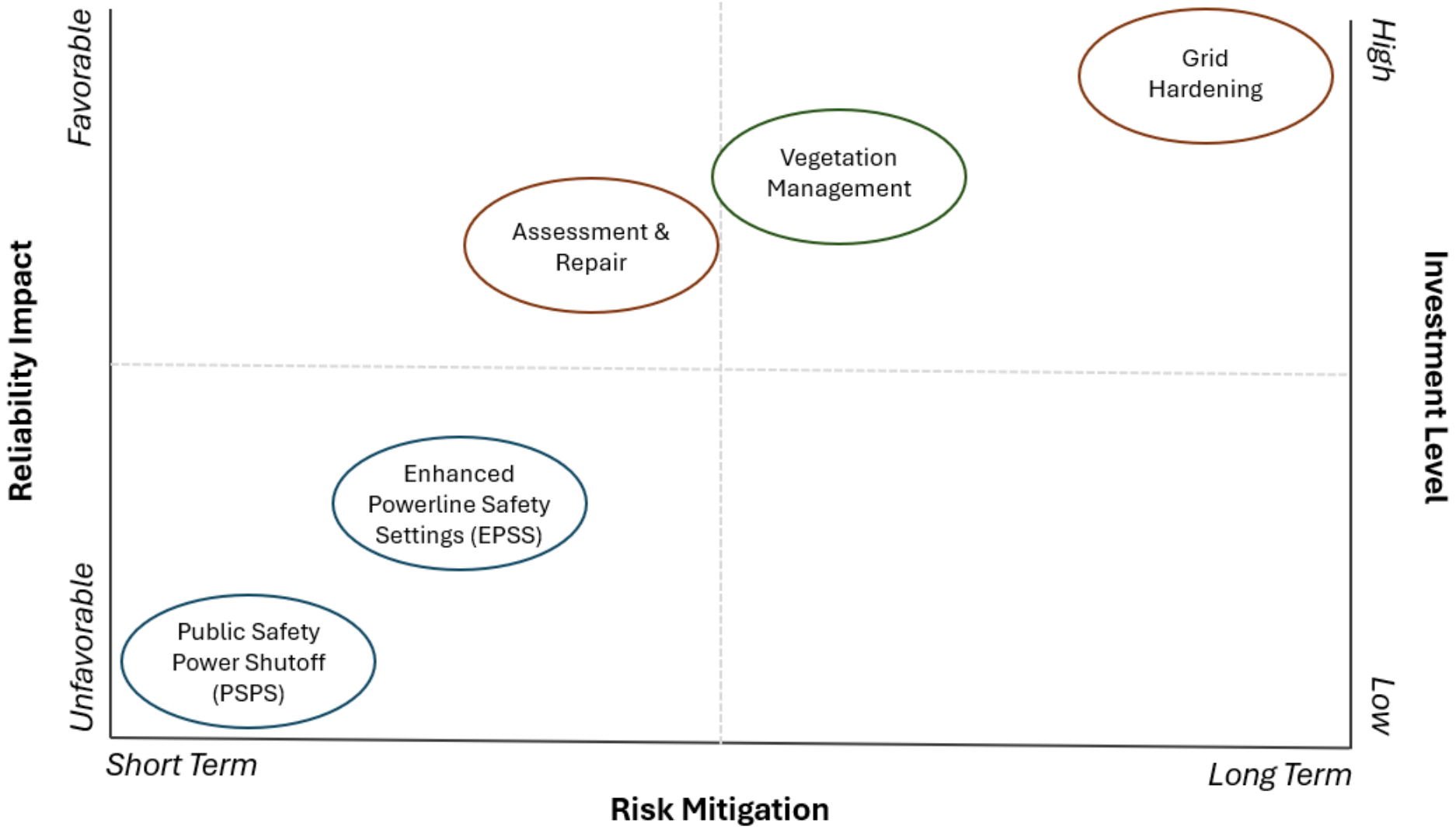


Wildfire System Risk - **Transmission**

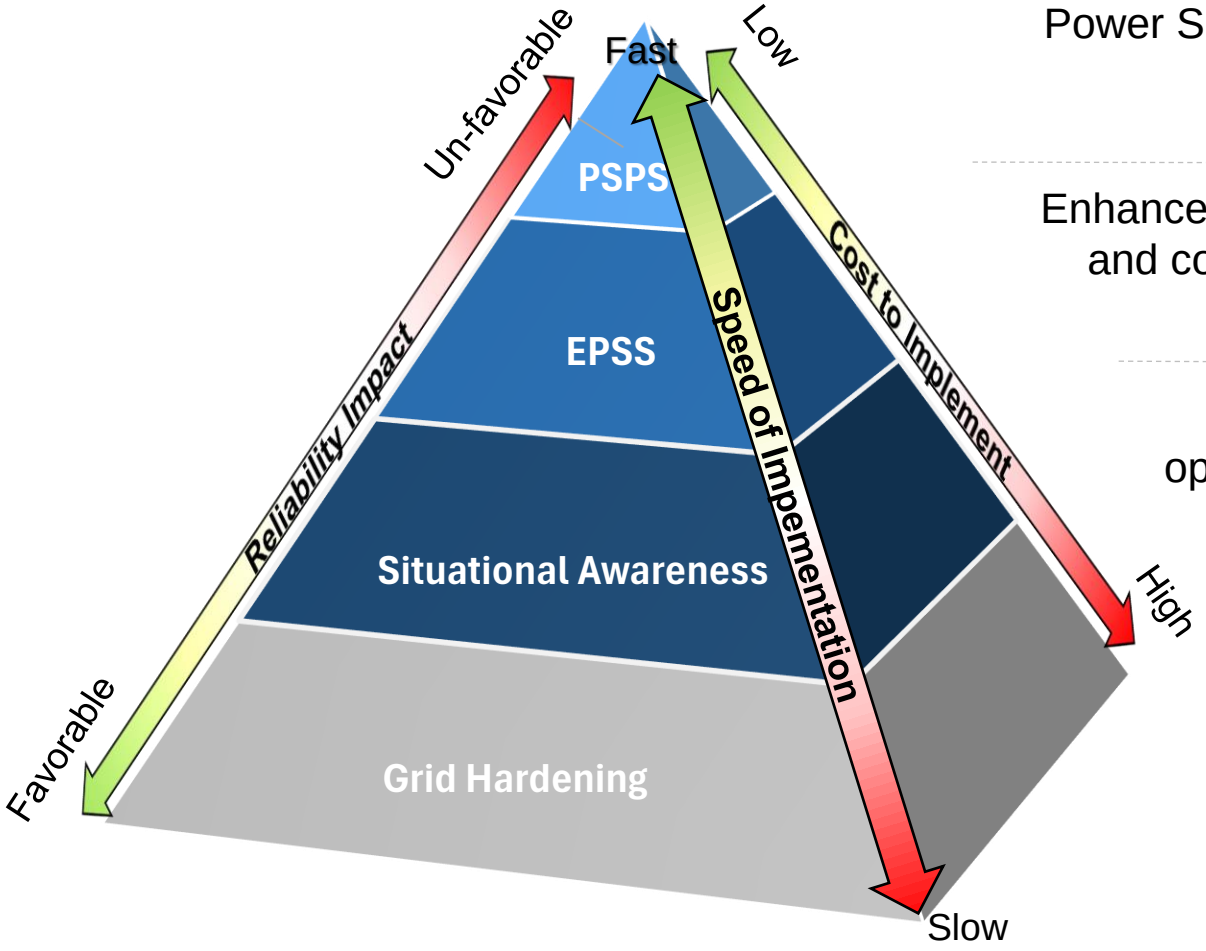


Wildfire Risk Informed Decision Making

Wildfire Risk Mitigation Strategies Impacts



Wildfire Risk Mitigation Strategies Hierarchy



Measure of last resort: Proactive de-energization of electric assets, Public Safety Power Shutoff (PSPS), in response to severe forecasted fire weather

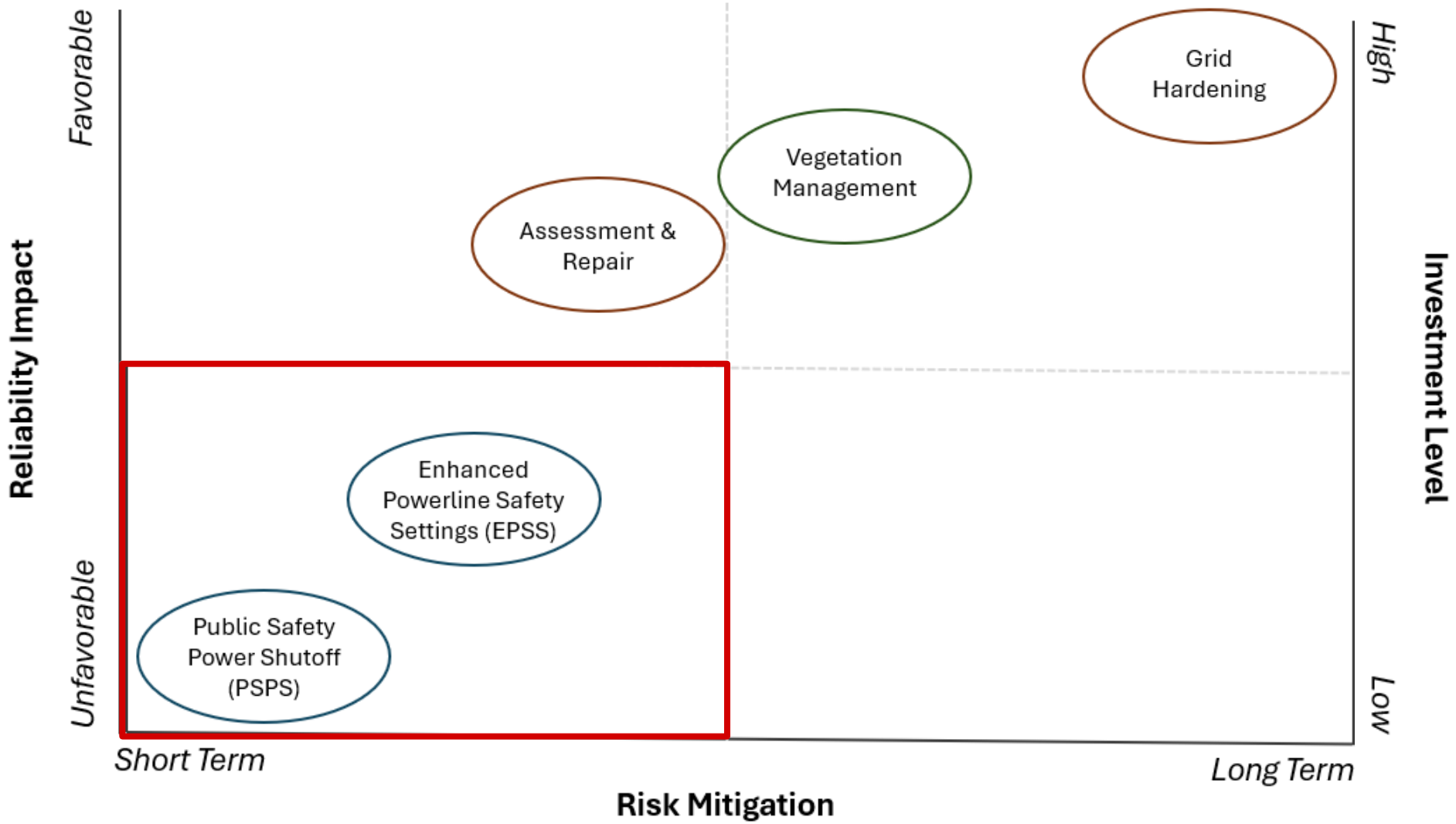
Enhanced Powerline Safety Setting (EPSS): Engineered enhanced protection and control settings during heightened wildfire likely conditions to reduce ignition potential

Continuously monitor environmental conditions to make informed operational decisions. Deploy smoke detection cameras and weather stations for increased situational awareness.

Enhanced proactive maintenance, targeted grid hardening, vegetation management, and deployment of technology with the focus of reducing ignition potential

Managing Immediate Wildfire Risk

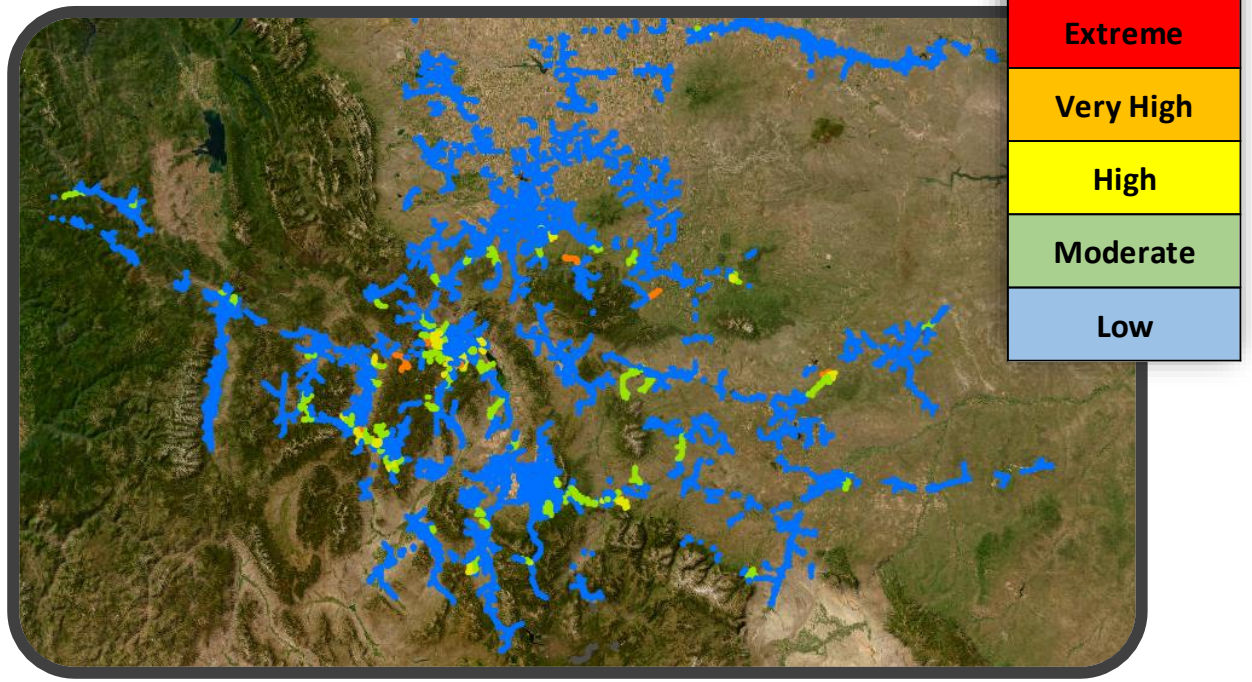
Wildfire Risk Mitigation Strategies Impacts – Short Term Strategies



Situational Awareness: Dynamic Wildfire Risk Dashboard

Spatially Combine:

- Forecasted Fire Weather
- NWE Asset Heath
- Consequence Areas



Provides wildfire risk visualization at an operational level

Situational Awareness Dashboards

- ✓MT Distribution And Transmission Wildfire Risk Dashboards
- ✓Work Practices Dashboards
- ✓PSPS Incident Hub
- ✓Smoke Detection Cameras
- ✓Weather Stations and Weather Applications

NorthWestern Energy
Delivering a Bright Future
iConnect

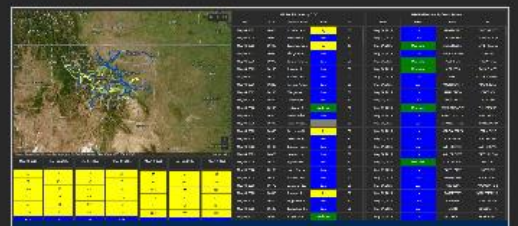
Links

- Benefits Showcase
- Employee Toolkit
- Power Outage Map
- Health & Wellbeing
- Self-Service Portal
- Esri ArcGIS Portal
- Wildfire Hub

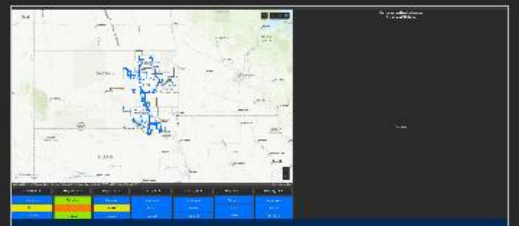
Wildfire Situational Awareness Hub

2025

Montana Distribution Wildfire Operations Dashboard



Montana Transmission Wildfire Operations Dashboard



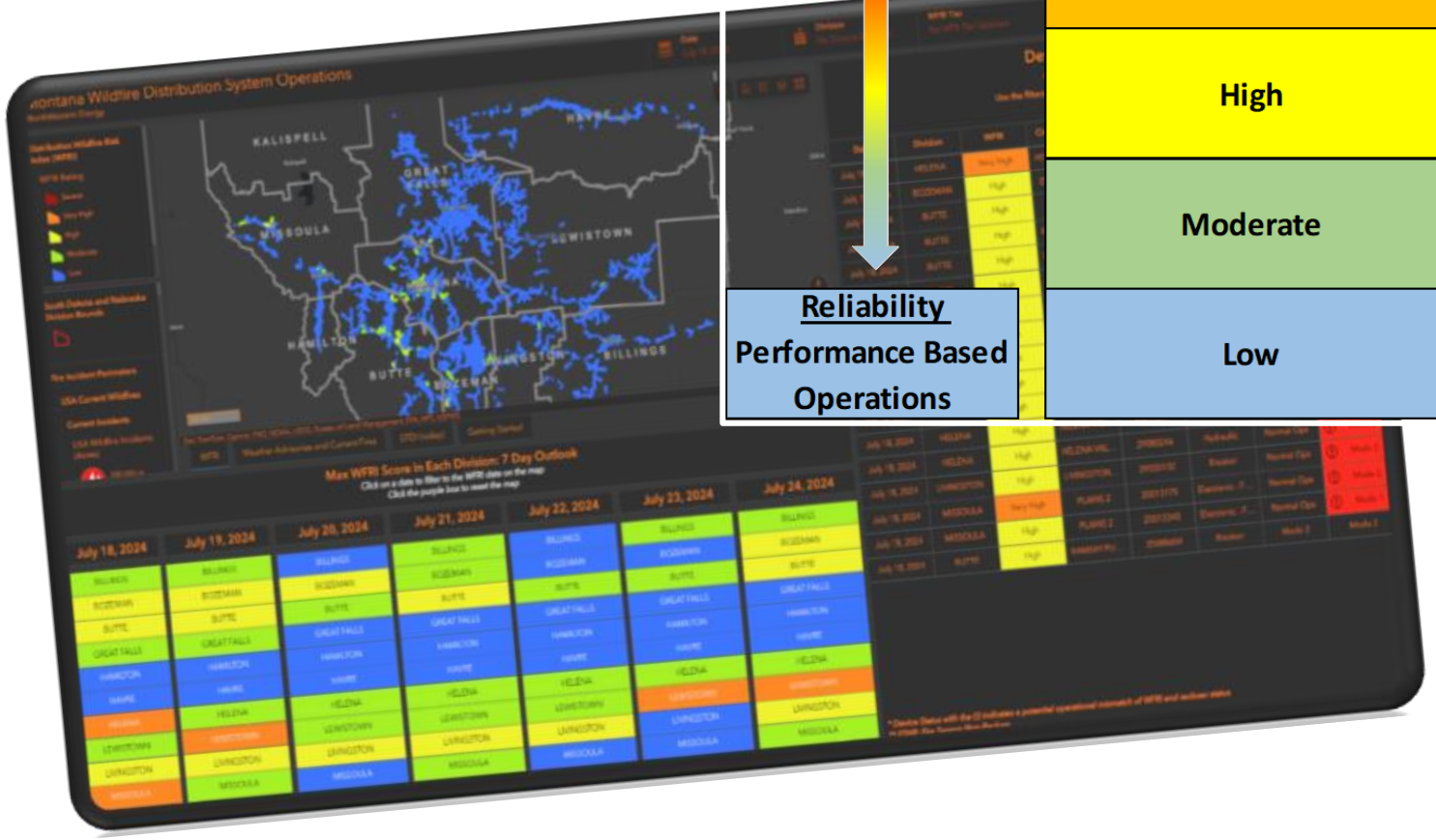
South Dakota Distribution Wildfire Operations Dashboard

Wildfire Field Work Practices

Internal - Desktop | External - Desktop | External - Mobile

How To: Add WP as Mobile App

System Operations Defenses- Balances Reliability and Risk



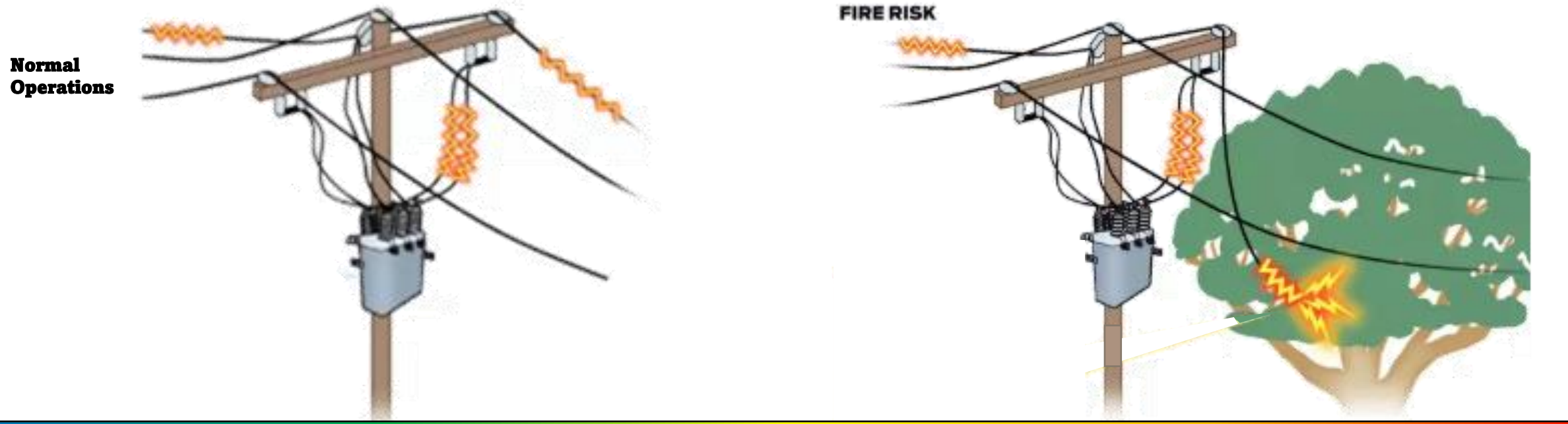
Safety
Risk Based Operation

Reliability
Performance Based Operations

Wildfire Risk Tier	Risk Description	Operation Defense Strategy
Extreme	Fire Start Imminent Uncontrollable	FM2 + PSPS Evaluation
Very High	Fire Start Easily Control Limited	Fire Season Operating Mode 2
High	Fire Start Caution Control Challenging	Fire Season Operating Mode 1
Moderate	Fire Start Challenging Control Achieveable	Normal Operations
Low	Fire Start Difficult Control Easily	Normal Operations

Set operations defense strategy to match corresponding wildfire risk level

Enhanced Powerline Safety Settings (EPSS)

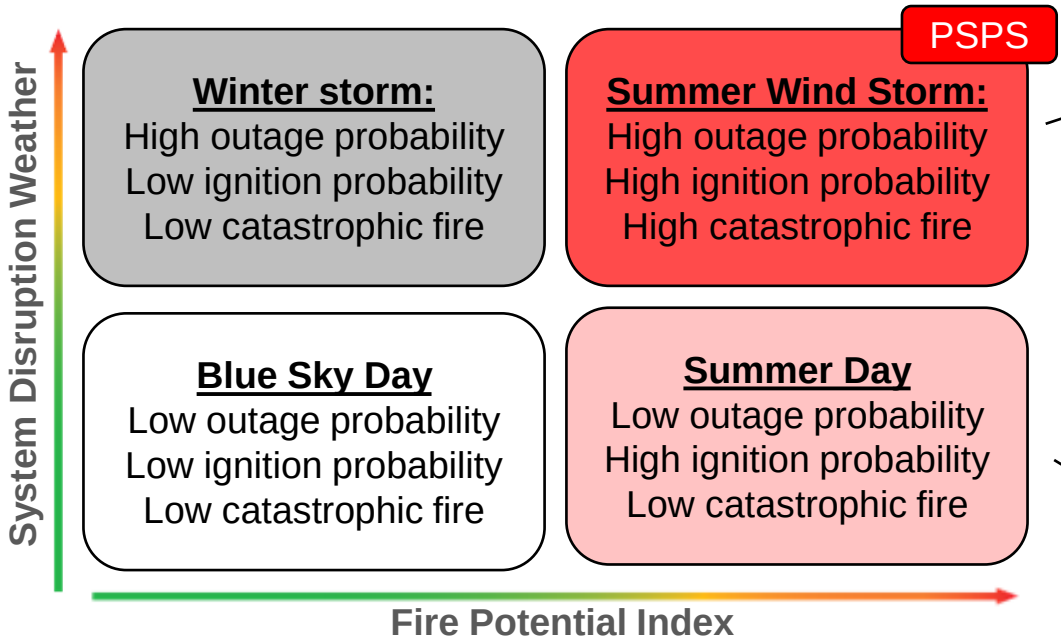


Situational Awareness

Reliability Based Operations	EPSS RELATED ITEM	Risk Based Operations
Enabled	**Reclose Status**	Blocked
At Fuse Level	**Fault Current Energy**	Minimized
Slow	**Trip Speed**	Fast or Instantaneous
Blown	**Fuse Status**	Saved
Minimized	**Outage Size**	Typically Larger

Images references from: https://www.sfchronicle.com/bayarea/article/Power-line-restart-device-implicated-in-past-12324764.php

Public Safety Power Shutoff (PSPS)



Planned power outage for public safety to prevent major wildfires during periods of severe fire weather.

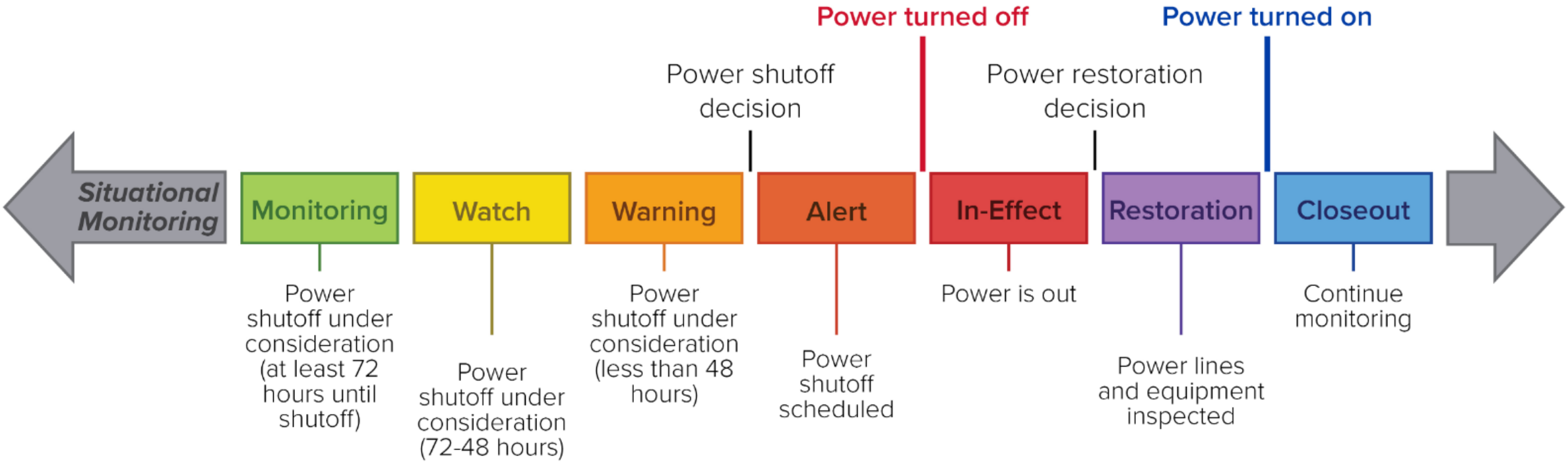
PSPS is a measure of last resort used to protect our communities from the potential of utility caused catastrophic wildfires

Enhanced Powerline Safety Settings (EPSS)

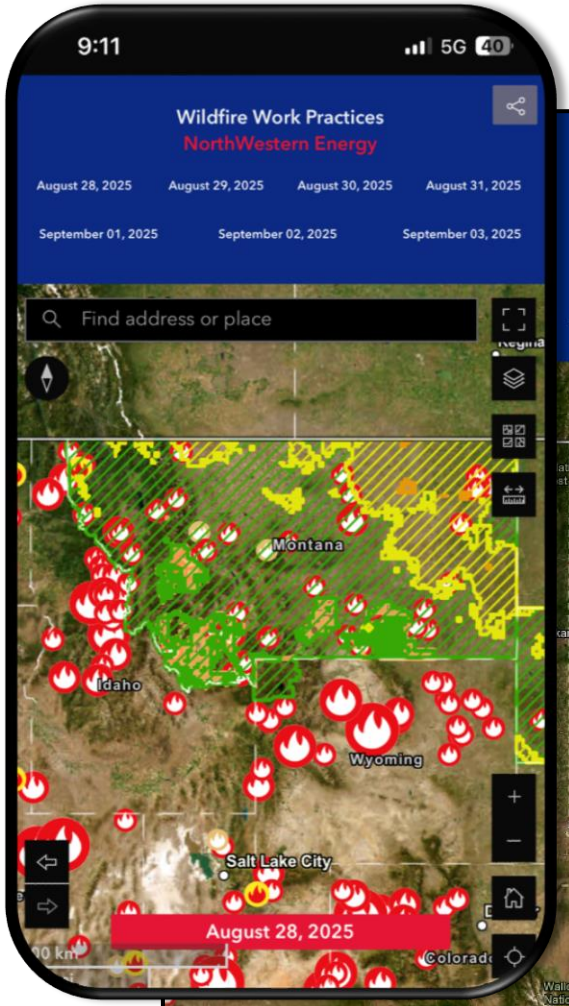
Elements Impacting Public Safety Power Shutoff Decisions

Public Safety Power Shutoff Decision Process

Our Public Safety Power Shutoff Communication Plan includes a **clearly defined, phased approach** that guides our communications during a PSPS event.



Operational Practice – Work Practices



NorthWestern Energy Risk and Work Practices Matrix for Field Work Practices

NWE Risk and Work Practices Matrix

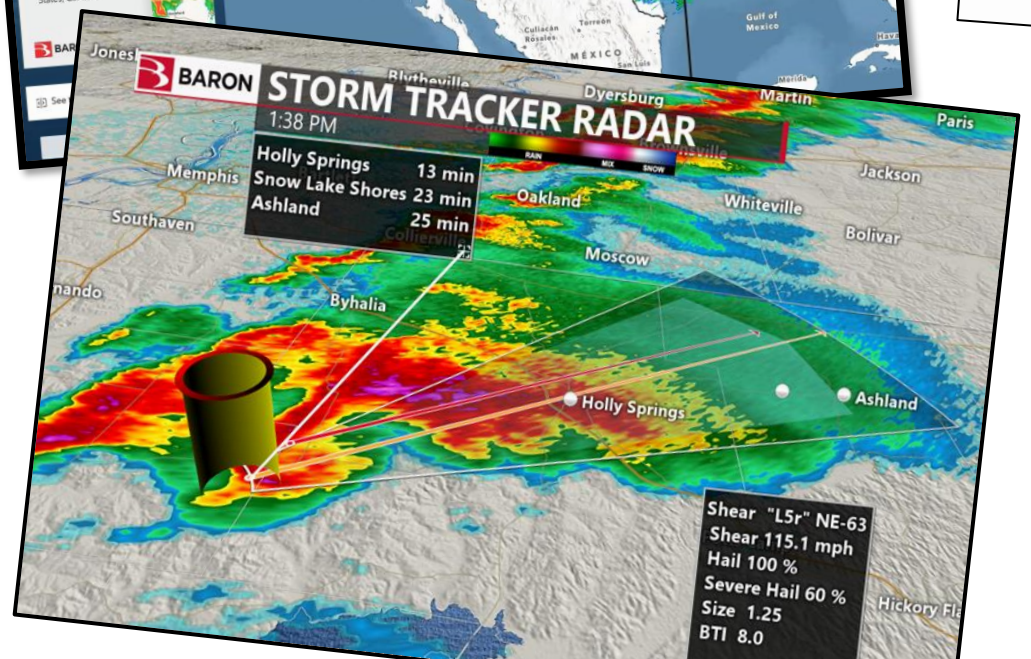
Severe Fire Danger Index (SFDI)	Zone 1 (Urban Exclusion Areas)	Zone 2 (All Areas outside Zone 1)
SEVERE	Non-Emergency Work Work Approval Required Follow Wildland Fire Restrictions Including Agency issued exemptions if Applicable Utilization of Prevention Field Practices	NO Non-Emergency Work Emergency Work Work Approval Required Utilization of Prevention Field Practices
Very High	Proceed With Work Follow Wildland Fire Restrictions Including Agency issued exemptions if Applicable Utilization of Prevention Field Practices	Non-Emergency Work Work Approval Required Follow Wildland Fire Restrictions Including Agency issued exemptions if Applicable Utilization of Prevention Field Practices
High	Proceed With Work Follow Wildland Fire Restrictions Including Agency issued exemptions if Applicable Utilization of Prevention Field Practices	Proceed With Work Follow Wildland Fire Restrictions Including Agency issued exemptions if Applicable Utilization of Prevention Field Practices
Moderate	Proceed With Work	Proceed With Work
Low		

Risk and Work Practices Matrix Legend

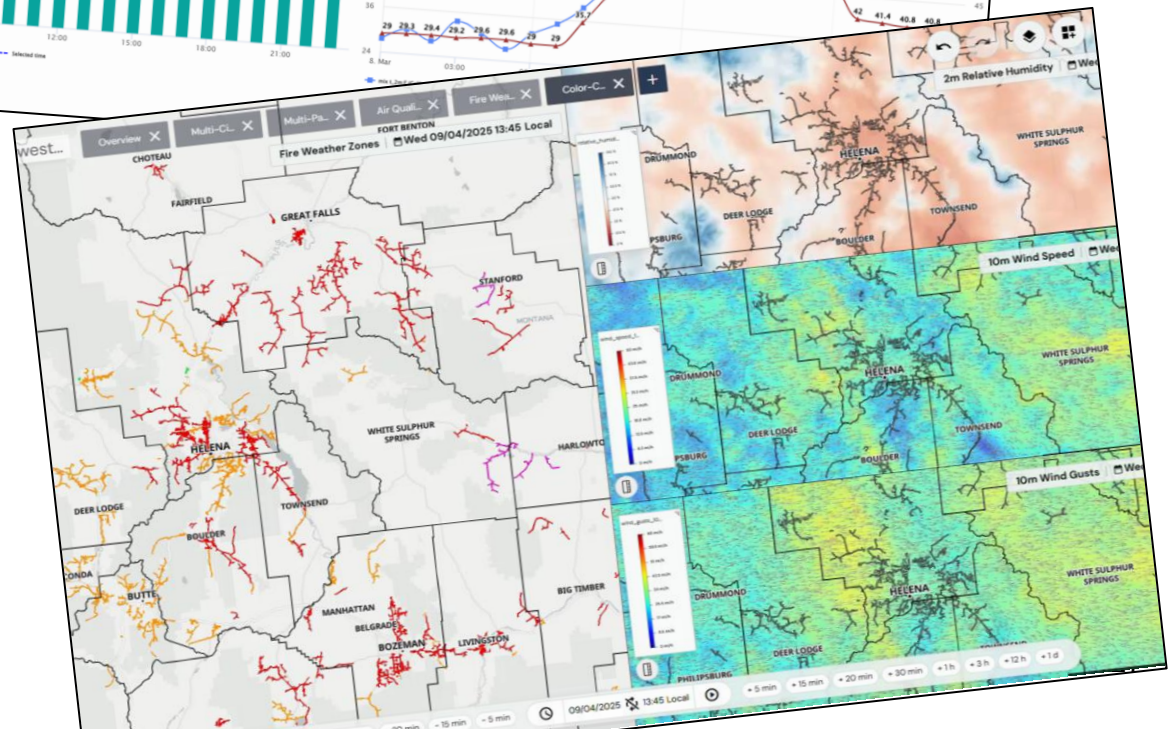
Proceed with Work	Normal operating procedures including tailboard documentation
Wildland Fire Restrictions	See Fire Restrictions for your work area, and check with supervisor for possible exemption to restrictions: Montana Fire Restrictions Dashboard
Utilization of Prevention Field Practices	Review and must use Prevention Field Practices See below
Non-Emergency Work	Work that is not deemed emergency work as determined by *Division Operations Supervision
Emergency Work	Work that is deemed emergency work as determined by *Division Operations Supervision

Situational Awareness: Weather Applications

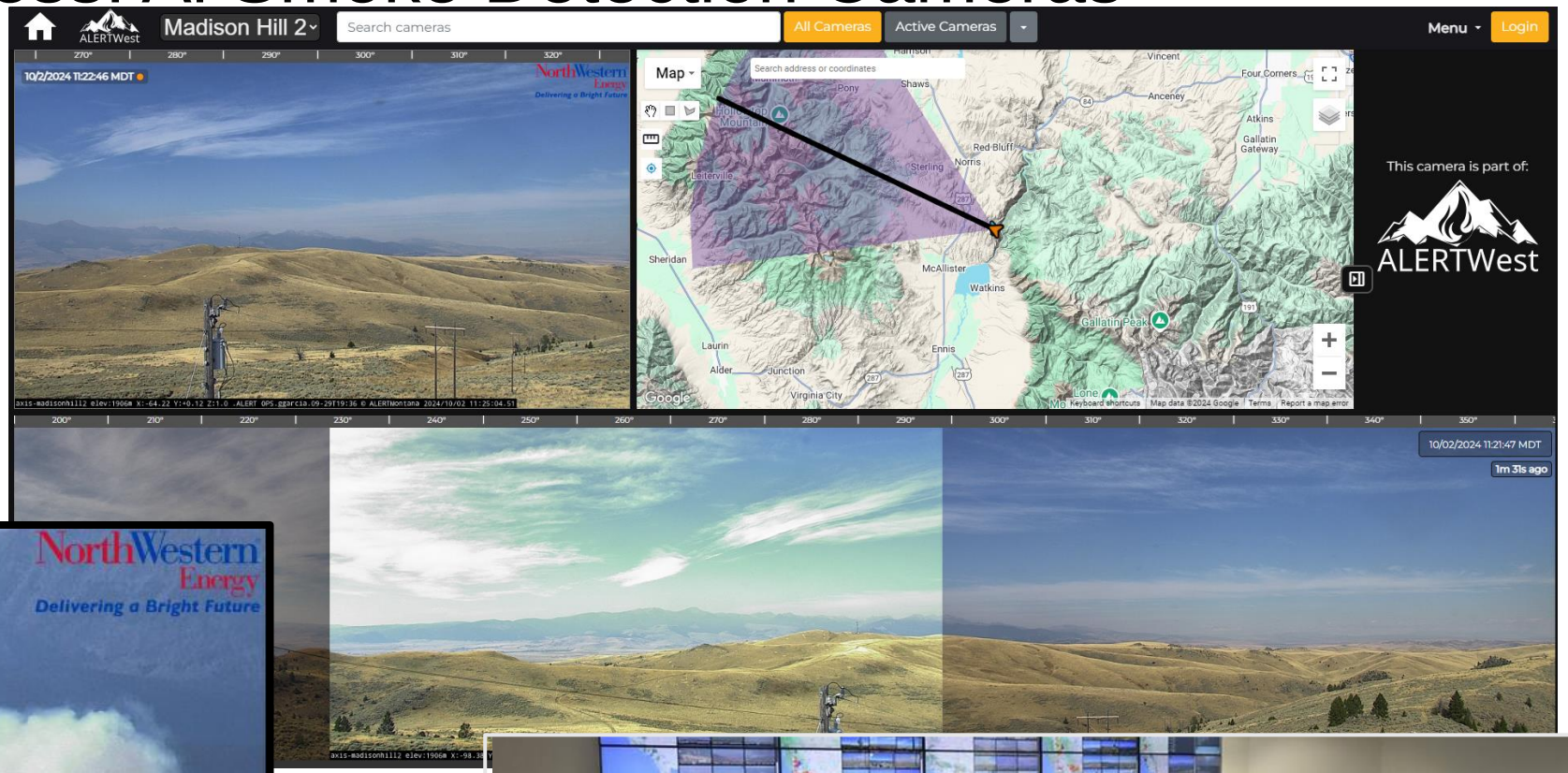
Baron Weather



Meteomatics (MetX)



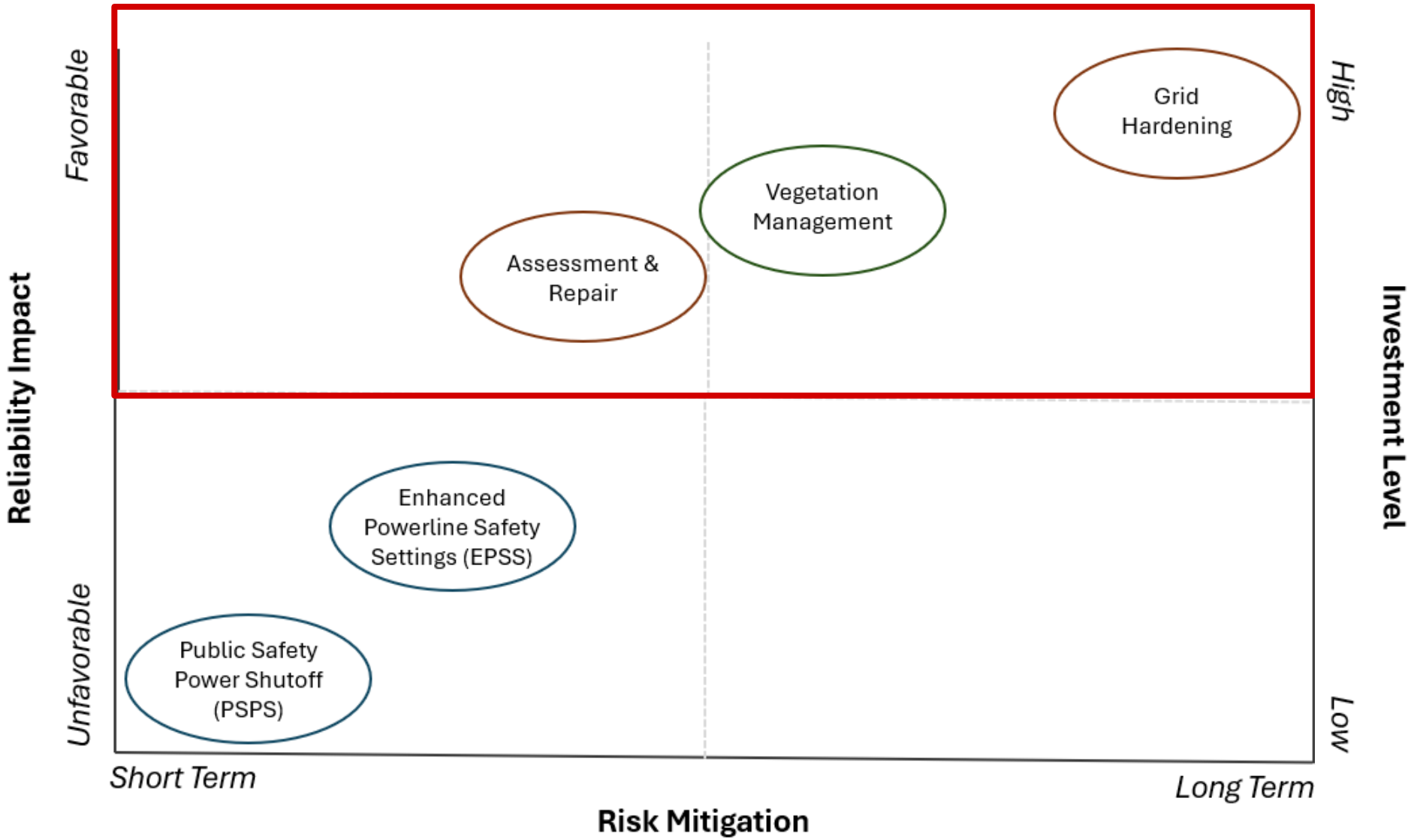
Situational Awareness: Ai Smoke Detection Cameras



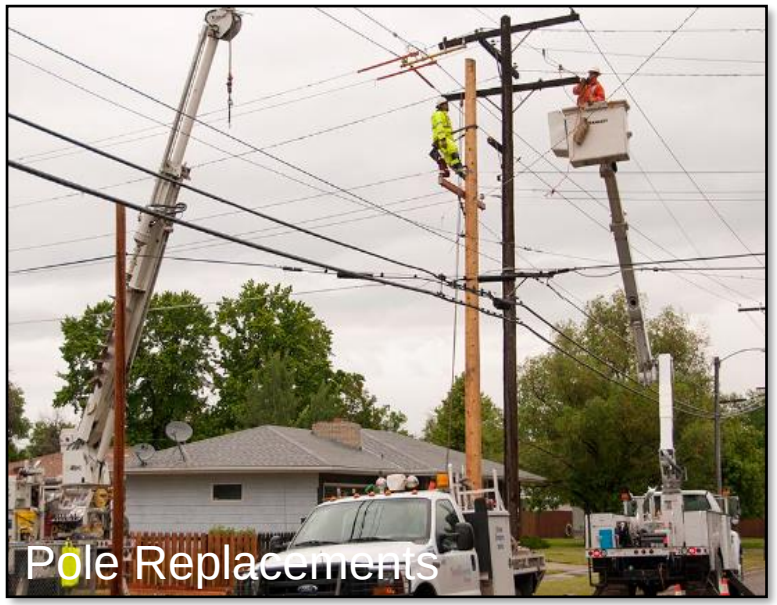
Situational Awareness: Cameras and Weather Stations

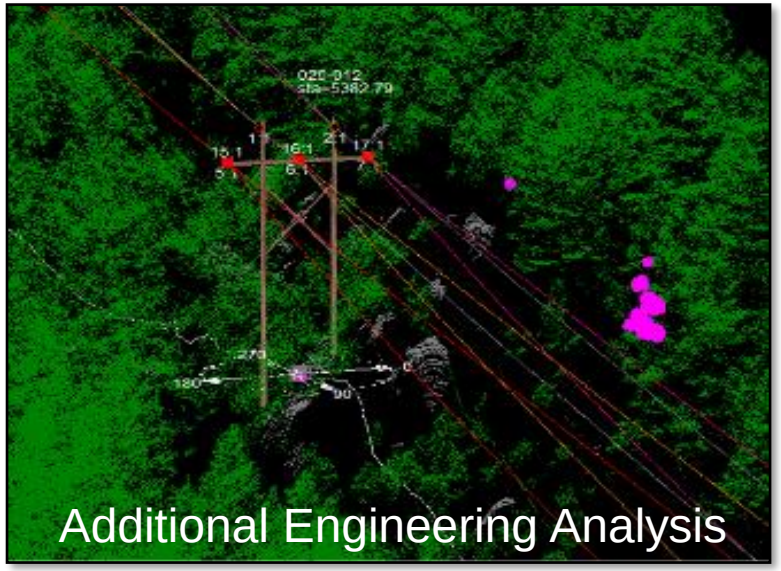
Managing Long Term Wildfire Risk

Wildfire Risk Mitigation Strategies Impacts – Long Term Strategies



Wildfire System Preparedness: Grid Hardening Programs



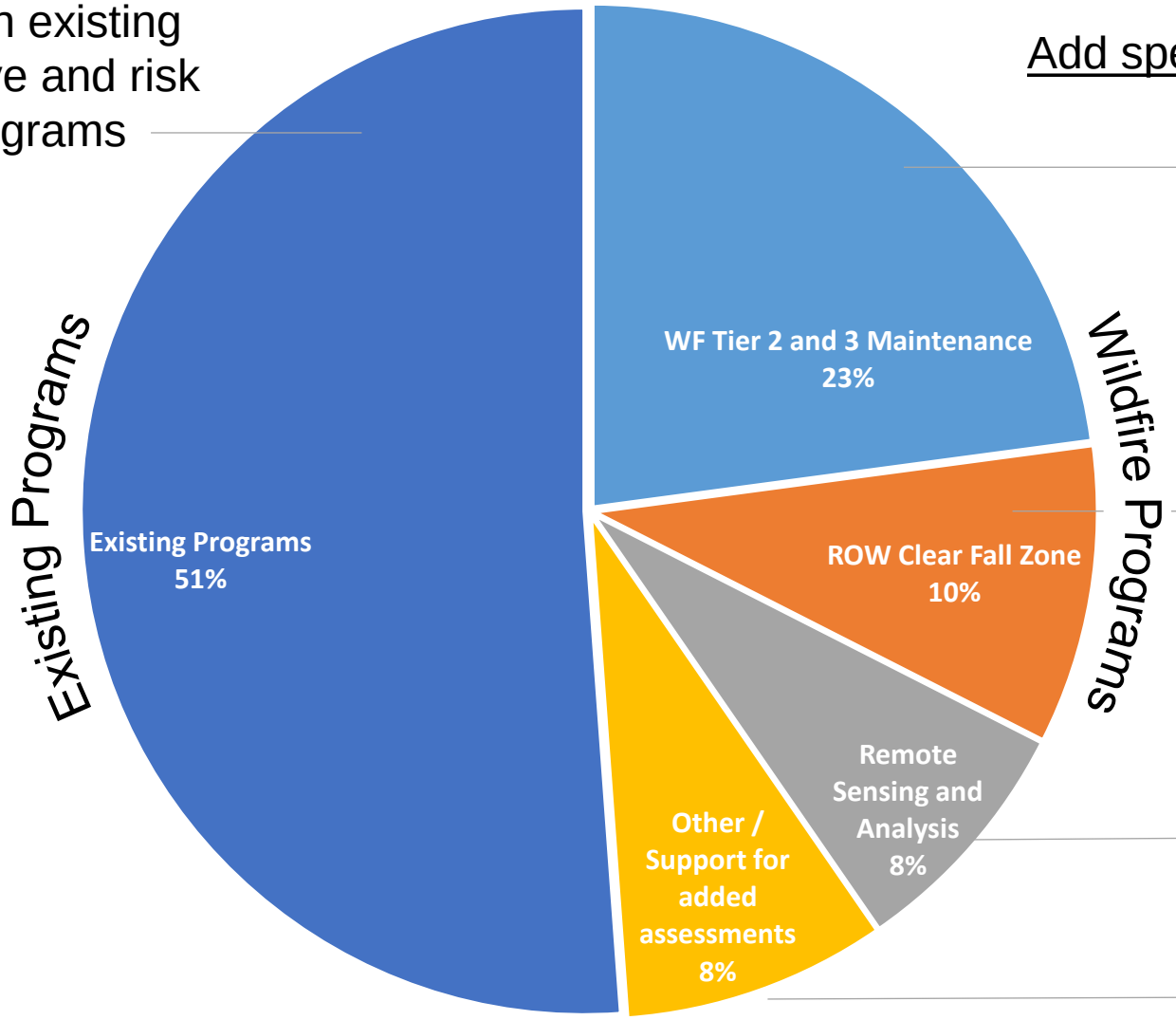


Additional Hardening could include:

- Re-conductor
- Re-routing
- New framing standards
- Line device upgrades
- Assessment repairs
- Communication and Technology upgrades

Vegetation Management – Increasing Maintenance Focus

Maintain existing proactive and risk tree programs



<u>Add specific wildfire vegetation management programs:</u>

Targeted areas based on wildfire risk tier
(~4,500 T&D Miles)

Create “clear fall zones” in areas of increased risk
(~750 T&D miles)

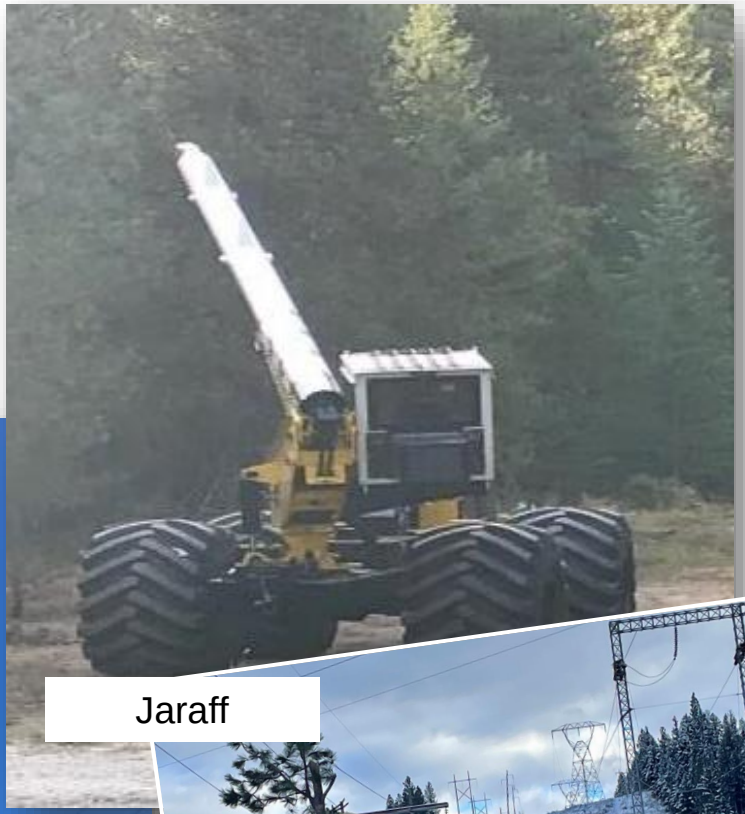
Implement technology to improve vegetation conflict analysis

Supported hot spotting based on increased assessment programs, explore fuel reduction partnerships

Vegetation Management – Equipment in Use

Backyard Lift

RC Mower



Jaraff

Slash Buster

Heli-Saw

Public Communication and Outreach

Revamped Website

A Resilient Electrical Grid

Starting in 2010, NorthWestern Energy began a major investment in our electrical grid. Our vision was for a distribution system that is reliable, able to grow, optimized, responsive to all customers, energy efficient, cost effective and state of the art. While these investments did not focus specifically on wildfire mitigation, effective management of our transmission and distribution assets provided a foundational core to reduce wildfire risk.

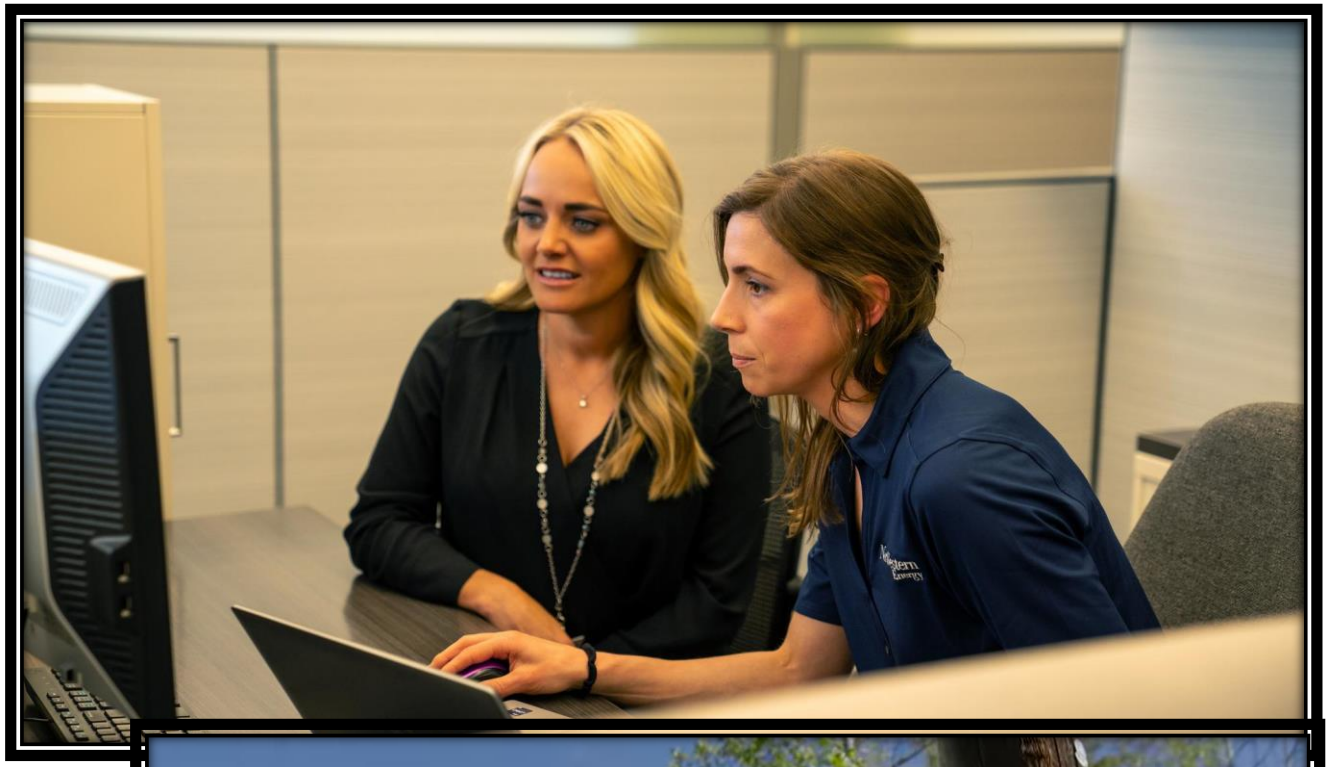
Vegetation Management

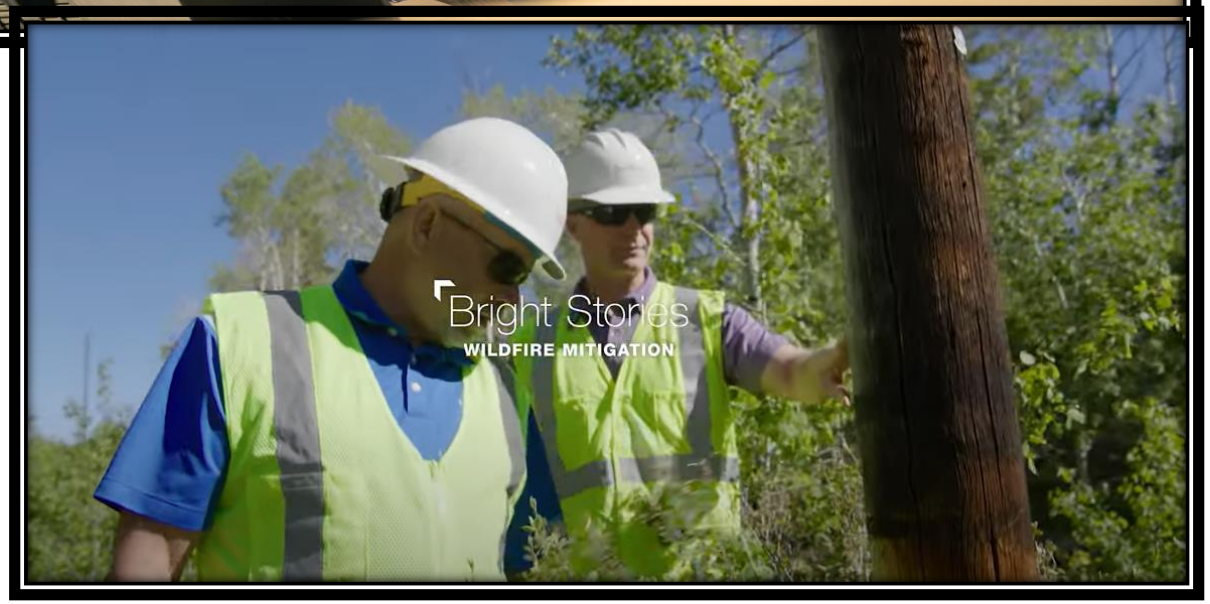
We have proactive efforts in place to mitigate trees or tree branches falling into power lines, to maintain healthy forests and to decrease fuel loading. This includes doing aerial and ground assessment of our powerlines and removing any vegetation that is at high-risk of causing a wildfire.

Situational Awareness

We have a Wildfire Operational department which focuses on monitoring weather forecasts and environmental conditions across our service territory. We're also implementing new field cameras that will allow us to monitor our system and detect wildfires as soon as they start.

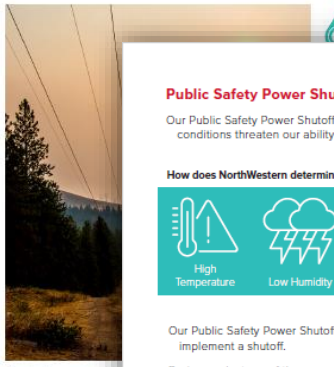
Paid Advertising





Targeted (e)mailing and Communication Sheets

Wildfire Mitigation Plan



Situational awareness – We have a Wildfire Operational department that focuses on monitoring weather forecasts and

Due to the growing thre
NorthWestern Energy
customers and comm

**What is NorthWes
prevent wildfire**

Maintaini
Starting i
a major i
system to
reliable, V
specifica
reliability
creating a spark that c

M
effo
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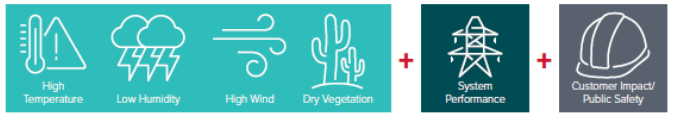
ma
do
powerlines and r
of causing a wildf

Public Safety Power Shutoffs

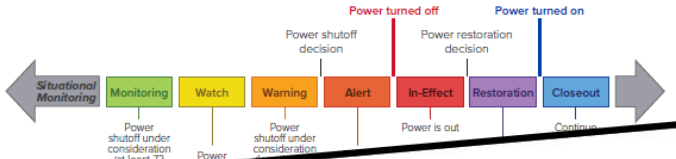
Our Public Safety Power Shutoff plan helps us prevent wildfires and keep our communities safe. If extreme weather conditions threaten our ability to safely operate the electrical grid, we will turn off power to help protect public safety.

How does NorthWestern determine when it should implement a power shutoff?



Our Public Safety Power Shutoff strategy includes a clearly defined, phased approach that guides us in the decision to implement a shutoff.

During each stage of the process, we are assessing the need for a public safety power shutoff. During any stage, we may decide a proactive outage is not needed.



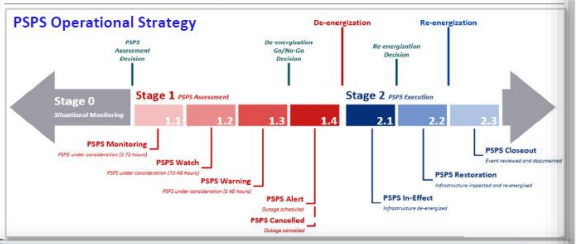
NORTHWESTERN ENERGY'S
PUBLIC SAFETY POWER SHUTOFF IMPLEMENTATION PLAN

PSPS Origination and Purpose

- ✓ Experiencing changes in operation of electric system
- ✓ Difficult environmental circumstances
- ulation in wildfire prone areas
- new techniques and best
- manage risks
- Public Safety Power Shutoff
- ed power shutoff to manage
- ce safety
- tect our customers and
- s from potential of utility
- strophic wildfires and is a
- "last resort"

Matching Defense Strategies to Mitigate Wildfire

PSPS Operational Strategy



NORTHWESTERN ENERGY'S
WILDFIRE MITIGATION PLAN

Highlights of the Plan

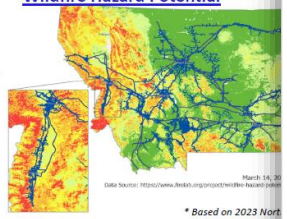
- ✓ Comprehensive summary of wildfire mitigation activities
- ✓ Expect to update plan with each electric rate review

tment for wildfire costs beyond amounts
rates (up to $95 million over 5 years)

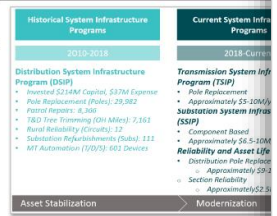
s of the plan, driven by risk analysis

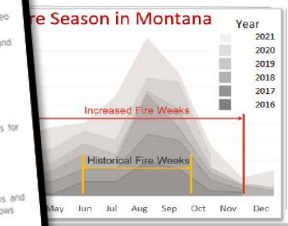
onal Awareness • Vegetation Management
onal Practice • Public Communication
Preparedness

Wildfire Hazard Potential



* Based on 2023 Nort





Expect to spend ~$500 million from 2024 to 2028. *The costs for the enhanced activities were developed as part of the original 2022 plan. The costs for established activities are not all-inclusive as several are routine tasks that are not individually tracked.*

8% of their distribution and transmission assets in the highest wildfire areas in Montana, s are increasing due to a longer duration of the Montana wildfire season.

May is Wildfire Awareness Month

The weather is getting warmer, and wildland vegetation is beginning to dry out, which is why May is a great time to plan for wildfire season. When it comes to wildfires, being prepared is the best way to protect your family, your home and your community. Here are some ways to prepare for wildfire season.

Update your contact information for alerts

Make sure your contact information is up to date with NorthWestern Energy. Do you have an old landline number or old email address on file? Now is a great time to double check.

Log in to My Energy Account and update your information. While you're there, set your notification preferences. You can select to be notified via text or email about outages, billing and more. This is one of the primary ways you'd be notified of a power outage or a Public Safety Power Shutoff.

Learn more at NorthWesternEnergy.com/notifications.

Know what to expect during a PSPS

As a measure of last resort, NorthWestern Energy may shutoff power during extreme situations to prevent sparking a wildfire. If extreme weather conditions threaten our ability to safely operate the electrical grid,

Make your home more fire resilient

Research about community destruction from wildfire has shown that embers are the main source of home destruction from wildfires. Embers can ignite materials on and adjacent to your home to cause ignition.

Here are five things to protect your home from wildfires:

1. **Install a Class A roof.** Your roof has the most surface area, therefore, will catch the most embers. Class A roofs are designed to minimize fire impacts. Class A roof materials include metal, tile and asphalt composition shingles Keep roof clear of pine needles, leaves, branches and other vegetative debris.
2. **Remove all combustible materials within the first 5 feet around your home.** Embers will collect in this zone. Remove woody plants, grasses, lumber, woodpiles, mulch and other combustible materials. Install gravel, rock or

Wildfire evacuation checklist

Remember that even small wildfires can cause evacuations. Sign up for emergency alerts through your county's emergency management agency to be notified of evacuations.

Go bag essentials:

- ☐ Important documents
- ☐ Medications
- ☐ Non-perishable food and water for 72 hours
- ☐ Inventory of home contents (consider making a video inventory now, prior to an emergency)
- ☐ Photographs of the exterior of the house and landscape
- ☐ Enough clothing for 3-5 days

Prepare your vehicle:

- ☐ Keep a full gas tank
- ☐ Place essential items in the car
- ☐ If you do not drive, make other arrangements for transportation in advance
- ☐ Close garage door when you leave

Inside the home:

- ☐ Close all interior doors if time allows
- ☐ Remove lightweight, non-fire-resistant curtains and other combustible materials from around windows
- ☐ Turn off all pilot lights
- ☐ Close fireplace damper
- ☐ Close or block off any doggie-doors
- ☐ Lock-up firearms or valuables

Prepare pets and animals:

- ☐ Have veterinary records and medications in one easy-to-find place
- ☐ Transport food, water and bowls in easy-to-carry, sealed containers
- ☐ Have a livestock trailer and reliable vehicle for towing the trailer

NorthWestern Energy
Delivering a Bright Future

Dear Customer,

We are reaching out to you because you own property in an area at high risk of wildfires.

Due to the growing threat of catastrophic wildfires, NorthWestern Energy is exploring new ways to protect our customers and communities from wildfires. Our wildfire specialists have identified your property to be within a high-risk area. Due to living in a high-risk wildfire area, we want to help you prepare for service interruptions and public safety power shutoffs. It is important to understand the steps NorthWestern Energy is taking to protect our customers, property and infrastructure, and the steps you can take to prevent wildfire damage.

What you can do:

- Ensure your **phone number and email address are**
- View our wildfire mitigation and public safety power shutoff plans at **NorthWesternEnergy.com/wildfires**

Because you are located in a high-risk area, you are more likely to experience a Public Safety Power Shutoff.

What is a Public Safety Power Shutoff?

A public safety power shutoff, or PSPS, is when NorthWestern Energy, or another energy company, proactively turns off power to an area where wildfire risk is unacceptably high due to extreme weather conditions. Public Safety Power Shutoffs help us prevent wildfires and keep our communities safe.

When do Public Safety Power Shutoffs occur?

Public Safety Power Shutoffs are used during extreme weather conditions when there is a high risk of an electrical line igniting a wildfire. The primary factors we look at to determine when a Public Safety Power Shutoff is necessary are **high temperatures, low humidity, dry vegetation and high wind**.

We may turn off power when extreme weather conditions are expected but before they hit an area.

What happens during a Public Safety Power Shutoff event?

Up to 72 hours but at least 48 hours before most Public Safety Power Shutoffs, NorthWestern Energy will notify customers who may be impacted. We will continue to update our customers as we monitor the situation and determine whether a power shutoff is necessary. Before power is turned off, all impacted customers will be contacted via phone and email (if we have your email address on file). **Power will remain off until weather conditions have improved** to the point where we can safely operate the electrical grid.

Customers will also be notified when their power has been restored.

How long does a Public Safety Power Shutoff last?

Public Safety Power Shutoffs can vary in length. We will not restore power until weather conditions have improved to the point where we can safely operate the electrical grid. After the extreme weather conditions have passed, we will patrol electrical lines to make sure no branches, trees or other items have fallen into the lines. Once any damage has been repaired, NorthWestern Energy will restore power. A Public Safety Power Shutoff, plus the time to patrol and make repairs, **could last several hours or even days depending on the magnitude of the weather event.** If storm damage occurs, restoration could take longer.

How will I be notified if there is a Public Safety Power Shutoff in my area?

If you will be impacted by a potential Public Safety Power Shutoff, NorthWestern Energy will notify you directly multiple times throughout the process. You will receive an automated phone call and email from us before power is turned off and after it is restored. You will soon also have the option to receive text notifications.

NorthWestern Energy will also post information on our website and social media accounts about Public Safety Power Shutoffs. **For the most up-to-date information during an event, visit NorthWesternEnergy.com.**

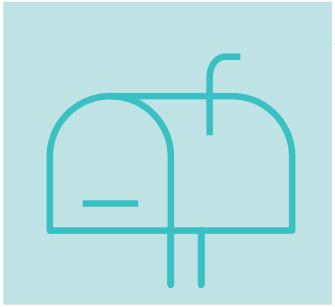
What if I have special medical needs and depend on electricity?

- Make a plan for medical needs such as refrigerated medicine or electrically powered medical equipment. This could mean finding a place you can go during an outage or using a backup generator.
- For medical emergencies, call 911.

NorthWestern Energy's top priority is your safety. By implementing these practices and plans in your home and community, you are helping reduce the impacts of wildfires in your area. For more information about Public Safety Power Shutoffs, our Wildfire Mitigation Plan, or Power Outages please visit our website at **NorthWesternEnergy.com/wildfire**, call one of our customer service representatives at 888-467-2669, or visit us on social media @northwesternenergy.

Learn more about Public Safety Power Shutoffs at NorthWesternEnergy.com/PSPS.

How we communicate about our wildfire mitigation efforts



Mailers

Communities: **234**

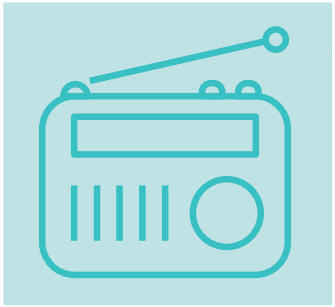
Estimated reach:

28,638 customers

Social media

Number of posts: **17**

Estimated reach: **33,700**



Paid media

Platforms: **5**

Estimated Reach: **9,331,091**

Community events

Number of events: **17**

Engagements: **1,055**

Email

Sent: **206,654**

Open rate: **39%**

Website traffic

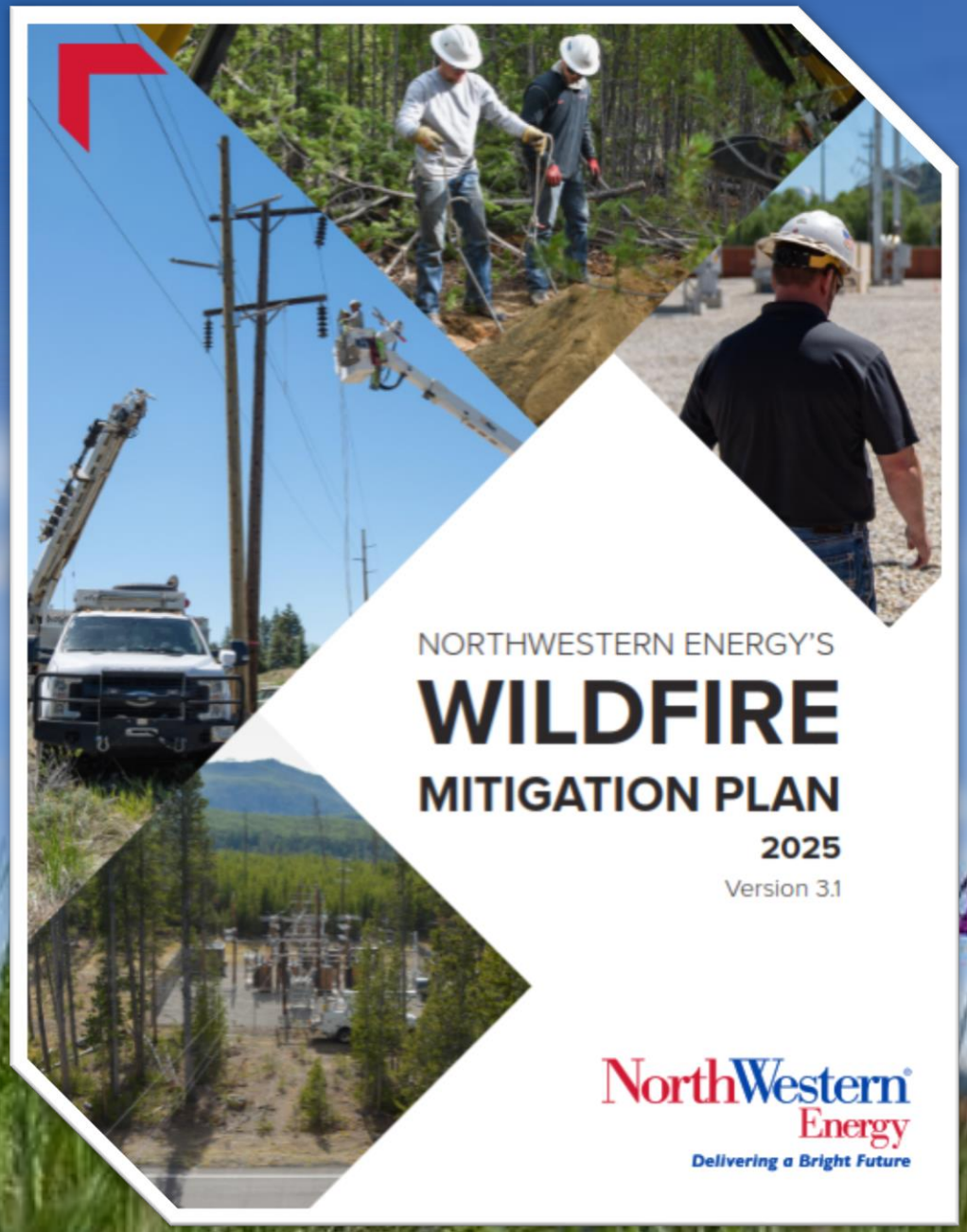
to our wildfire safety pages

Page views: **113,876**

NWE WMP In Summary

Conclusion – NWE's Wildfire Mitigation Plan

- Plan that is right for Montana
- Montana Risk-Based Approach
- Developed strategies that leveraged our strengths and our opportunities
- Multi-layered mitigation approach that are risk informed for cost-effectiveness
- Customer, Community and Stakeholder Focused
- Designed to meet standard of care consistent with the industry
- Meets the requirements of HB490



View the Entire Plan:

https://northwesternenergy.com/safety/wildfire-safety/wildfire-mitigation-plan