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Filed For: Nevada Power Company and Sierra Pacific Power

In accordance with NRS Chapter 719,
this filing has been electronically signed and filed
by: /s Ashleigh Sternod

By electronically filing the document(s),
the filer attests to the authenticity of the electronic signature(s) contained therein.

This filing has been electronically filed and deemed to be signed by an authorized agent or
representative of the signer(s) and
Nevada Power Company and Sierra Pacific Power

BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

Joint Application of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy for Approval of their Joint Natural Disaster Protection Plan.	Docket No. 23-03___

VOLUME 1 OF 2

NEVADA POWER COMPANY D/B/A NV ENERGY AND SIERRA PACIFIC POWER COMPANY D/B/A NV ENERGY

March 1, 2023

Ms. Trisha Osborne, Assistant Commission Secretary
Public Utilities Commission of Nevada
Capitol Plaza
1150 East William Street
Carson City, Nevada 89701-3109

RE: Joint Application of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy for Approval of their Joint Natural Disaster Protection Plan.

Dear Ms. Osborne:

Enclosed for filing with the Public Utilities Commission of Nevada ("Commission") please find the Joint Application of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy for Approval of their Joint 2024-2026 Natural Disaster Protection Plan. Also enclosed is a draft notice of the Petition pursuant to NAC § 703.162.

Should you have any questions regarding this filing, please contact me at (775) 834-5793 or Michael.Knox@nvenergy.com.

Respectfully submitted,

/s/ Michael D. Knox
Michael D. Knox
Senior Attorney

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NEVADA POWER COMPANY D/B/A NV ENERGY AND SIERRA PACIFIC POWER COMPANY D/B/A NV ENERGY

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CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing filing of **NEVADA POWER COMPANY D/B/A NV ENERGY AND SIERRA PACIFIC POWER COMPANY D/B/A NV** in Docket No. 23-030__ upon the persons listed below by electronic service:

Staff Counsel Division
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DATED this 1st day of March, 2023.

/s/ Ashleigh Dennis
Ashleigh Dennis
Regulatory Operations Analyst
Nevada Power Company
Sierra Pacific Power Company

DRAFT NOTICE

Draft Notice Application for Applications, Petitions and Complaints

The Commission requires a draft notice be included with all applications, petitions and complaints. See Nevada Administrative Code 703.162. Please include one copy of this form with all the above filings.

I. Include a title that describes the relief requested, or proceeding scheduled pursuant to Nevada Administrative Code ("NAC") 703.160 (5)(a.)

Application of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy for Approval of their Joint 2024-2026 Natural Disaster Protection Plan.

II. Include the name of the applicant, complainant, petitioner, or the name of the agent for same pursuant to NAC 703.160 (5)(b).

Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy.

III. Include a paragraph with a brief description of the purpose of the filing or proceeding with an introductory statement in plain English understandable to a person of average knowledge and intelligence, that summarizes the relief requested or proceeding scheduled, **AND** its impact upon consumers, pursuant to NAC 704.160 (5)(c).

Nevada Power Company and Sierra Pacific Power Company are seeking approval of their joint 2024-2026 Natural Disaster Protection Plan. The Application requests that the Public Utilities Commission of Nevada approve the Plan, which presents existing and proposed initiatives that are intended to mitigate natural disaster risks, including identification of areas at high-risk for natural disasters, implementation of protocols to inspect electrical infrastructure, implementation of protocols for vegetation management, preventative steps to mitigate disaster risks, provision of adequate natural disaster response, and establishment of proactive de-energization protocols for the utilities' electric assets in the event of fire weather conditions or related natural disasters.

IV. A declaration by the applicant, petitioner, or complainant whether a consumer session is required by Nevada Revised Statute ("NRS") 704.069 (1). NAC 703.162 (2)[1]

[1] **NRS 704.069 Commission required to conduct consumer session for certain rate cases; Commission required to conduct general consumer session annually in certain counties.**

1. The Commission shall conduct a consumer session to solicit comments from the public in any matter pending before the Commission pursuant to NRS 704.061 to 704.110, inclusive, in which:

(a) A public utility has filed a general rate application, an application to recover the increased cost of purchased fuel, purchased power, or natural gas purchased for resale or an application to clear its deferred accounts; and

A consumer session is not required pursuant to NRS 704.069.

V. If the draft notice pertains to a tariff filing, please include the tariff number **and** the section number(s) or schedule number(s) being revised.

Not applicable.

(b) The changes proposed in the application will result in an increase in annual gross operating revenue, as certified by the applicant, in an amount that will exceed $50,000 or 10 percent of the applicant's annual gross operating revenue, whichever is less.

2. In addition to the case-specific consumer sessions required by subsection 1, the Commission shall, during each calendar year, conduct at least one general consumer session in the county with the largest population in this state and at least one general consumer session in the county with the second largest population in this state. At each general consumer session, the Commission shall solicit comments from the public on issues concerning public utilities. Not later than 60 days after each general consumer session, the Commission shall submit the record from the general consumer session to the Legislative Commission.

EXHIBIT A
APPLICATION

BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

Joint Application of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy for Approval of the 2024-2026 Natural Disaster Protection Plan.	Docket No. 23-03___

JOINT APPLICATION

Nevada Power Company d/b/a NV Energy ("Nevada Power") and Sierra Pacific Power Company d/b/a NV Energy ("Sierra" and, together with Nevada Power, the "Companies" or "NV Energy") make this Joint Application pursuant to Nevada Revised Statute ("NRS") § 704.7893 for approval by the Public Utilities Commission of Nevada ("Commission") of the Companies' 2024-2026 Natural Disaster Protection Plan ("NDPP" or "Plan"). NRS § 704.7983 establishes a requirement that NV Energy prepare and file with the Commission a Plan on or before June 1, 2020, and on or before June 1 of every third year thereafter. Furthermore, Section 8.2 of the regulations adopted by the Commission in Docket No. 19-06009, Legislative Counsel Bureau File No. R085-19 ("NDPP Regulations"), requires that NV Energy file its NDPP on or before March 1, 2020, and every third year thereafter. Section 8.2 of the NDPP Regulations also requires the Commission to issue an order accepting or modifying the NDPP, or specifying any portions of the plan it deems to be inadequate, within 180 days after its filing. The statutory period within which this matter must be resolved therefore runs through August 28, 2023.

I.
SUMMARY AND INTRODUCTION

NRS § 704.7893 requires NV Energy to file an NDPP that contains information, procedures and protocols relating to the efforts of the electric utilities to prevent or respond to wildfires or other natural disasters. The NDPP Regulations define a natural disaster as "any

natural catastrophe, including, without limitation, wind, wildfire, storm, high water, earthquake, avalanche, landslide, mudslide or heat wave."

The Companies filed their inaugural NDPP on February 26, 2020, and the Commission issued its Second Modified Final Order approving the NDPP on December 22, 2020, in Docket No. 20-02031. The Companies also filed, and obtained the Commission's approval of, a first amendment to the NDPP in Docket No. 21-03040; and a second amendment to the NDPP in Docket No. 22-08001, which the Commission granted in part and denied in part. This Joint Application presents a comprehensive natural disaster protection plan for the 2024 through 2026 period. The Plan reflects NV Energy's lessons learned since filing the inaugural plan and a deeper understanding of the connectedness of individual Plan elements.

The Plan begins with a focus on completing the wildfire risk mitigation work identified in the inaugural plan and subsequent amendments. Based on a refreshed fire threat analysis from REAX Engineering and discussions with the expert working group, the Plan proposes two modifications to the risk wildfire risk tiers. First, the Companies request creating a new Tier 1 heightened wildfire risk area to refine and replace the existing wildland-urban interface ("WUI") tier. In addition, the Companies recommend elevating the Virginia City Highlands area from the Tier 2 wildfire risk area to Tier 3 based in its unique risk profile.

The Plan continues the circuit resilience and line ruggedization programs from the inaugural plan to address monsoon-prone areas in southern Nevada and protect against cascading toppling poles. Based on experience implementing the NDPP to date, the Companies are proposing phased and levelized project implementation across wildfire tier areas for copper wire replacement, circuit rebuilds, circuit patrols, and detailed inspections to lower cost and drive efficiencies. The Plan also presents a proposal for the Commission to issue a prudency determination for capital projects related to natural disaster risk mitigation and grid resiliency to be recovered through general rates. This recognizes both the need to adjust the Companies' "normal operations" to evolving climate conditions and the

Commission's current draft regulations in Section 13 of LCB File No. R011-22, which envision future cost recovery proceedings for NDPP projects being filed with a rate case.[1]

The Plan includes advanced technology initiatives such as increased sectionalization, microgrid alternatives for back-up power, and a comprehensive assessment for protective devices to ensure maximum efficacy in heightened risk areas and ensure no new risks are introduced. The Plan also begins to realize the full benefits of the Technosylva wildfire platform, a next generation software that provides wildfire forecasting and threat analysis that the Companies can use in combination with other programs and platforms. The Companies have linked infrastructure maps and their infrastructure database to drive superior risk analysis. Together, these tools help the Companies understand both natural disaster threat propensity and infrastructure conditions to better protect public safety while reducing outages and prioritizing mitigating actions.

The Plan outlines a prescriptive plan to achieve timely and cost-effective vegetation management. In the inaugural NDPP, the Companies committed to working toward defined vegetation management cycles to reduce the amount of fuels near electric infrastructure. Those programs are now in full swing and the Plan puts in place a strategy to prioritize vegetation managment in remaining areas with heightened risk while eventually transitioning to regular maintenance cycles that will be less intensive to maintain.

Finally, the Plan places more emphasis and resources on longer-term investments while looking to maintain recurring activities that reduce controllable risk on the electric system. NV Energy has now completed permitting and designs that allow it to more effectively execute on such long-term infrastructure investments to reduce risk over longer time horizons.

For the 2024-2026 period, the Companies request $373,059,298 in total expenditures for the Plan that would be recoverable through the NDPP regulatory asset, assuming

[1] Procedural Order No. 9, Docket No. 19-06009, at Attachment 1 (Sept. 9, 2022). Attachment 1 is LCB File No. R011-22, as returned to the Commission from the Legislative Counsel Bureau.

incrementally can be validated as part of the recovery filing. This includes $201,961,191 in OMAG and $171,098,107 in capital investment. Separately, the Companies are requesting a prudency determination for an additional $92,585,685 in capital projects related to natural disaster risk mitigation and grid resiliency. The Companies will seek to recover these additional investments through each service territory's next general rate case as normal operating capital. These projects are not included as part of the requested budget authorization for this Plan. Table 1 provides the breakdown of costs for inclusion in the authorized budget for this Plan by activity and service territory, which would be recovered through the NDPP regulatory asset. Table 2 provides the breakdown of capital investments for which the Companies are requesting a prudency determination and which would be recovered in a future general rate review proceeding.

Table 1 – NDPP Capital and OMAG

	2024 Forecast	2025 Forecast	2026 Forecast	2024-2026 Total
Capital NDPP				
NPC	13,261,534	15,977,636	14,253,993	43,493,163
SPPC	48,262,078	43,670,386	35,672,479	127,604,943
Subtotal	**61,523,613**	**59,648,022**	**49,926,472**	**171,098,107**

	2024 Forecast	2025 Forecast	2026 Forecast	2024-2026 Total
OMAG NDPP				
NPC	13,924,794	9,998,758	9,559,662	33,483,214
SPPC	55,845,311	55,071,142	57,561,524	168,477,977
Subtotal	**69,770,105**	**65,069,900**	**67,121,185**	**201,961,191**
Total NDPP	**131,293,718**	**124,717,922**	**117,047,658**	**373,059,298**

Table 2 – GRC Capital Investments

	2024 Forecast	2025 Forecast	2026 Forecast	2024-2026 Total
Capital GRC				
NPC	4,349,822	13,103,396	15,851,712	33,304,930
SPPC	12,997,500	17,261,148	29,022,107	59,280,755
Total Capital GRC	**17,347,322**	**30,364,544**	**44,873,819**	**92,585,685**

II.

THE APPLICANTS

Nevada Power and Sierra are Nevada corporations and wholly-owned subsidiaries of NV Energy, Inc. Nevada Power and Sierra are public utilities as defined in NRS § 704.020 and are subject to the jurisdiction of the Commission. Nevada Power is engaged in providing electric service to the public in portions of Clark and Nye counties, Nevada pursuant to a certificate of public convenience and necessity issued by this Commission. Sierra provides electric service to the public in portions of fourteen northern Nevada counties, including the communities of Carson City, Minden, Gardnerville, Reno, Sparks, and Elko. Sierra owns and operates a certificated local distribution company engaged in the retail sale of natural gas to customers in the Reno-Sparks metropolitan area.

Sierra's primary business office is located at 6100 Neil Road in Reno, Nevada and Nevada Power's primary business office is located at 6226 West Sahara Avenue in Las Vegas, Nevada. All correspondence related to this Application should be served electronically upon the following address: regulatory@nvenergy.com. Hardcopy documents should be transmitted to the Companies as set forth below:

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III.

APPLICATION EXHIBITS

NV Energy has included with this Joint Application and incorporated herein by reference the following Application Exhibits:

- Application **Exhibit A** is a proposed notice of the Application as required by NAC § 703.162.
- Application **Exhibit B** is a complete narrative version of the Natural Disaster Protection Plan entitled "2023 Natural Disaster Protection Plan Triennial Update."

IV.

SUPPORTING MATERIAL

The prepared direct testimony of the following witnesses supports the Companies' Plan.

Jesse Murray, Vice President, Electric Delivery. Mr. Murray presents an overview of the Plan, discusses the overall strategic approach and policy considerations of the Plan, outlines the primary elements and budgetary requests of the Plan, and discusses the differences between this Plan and the Companies' inaugural NDPP.

Danyale Howard, Director of Natural Disaster Protection Program Execution. Ms. Howard sponsors the elements of the Plan related to circuit patrols; detailed inspections and corrections; system hardening; investment sharing; undergrounding; distribution overhead rebuilds; copper wire removal; expulsion fuse replacements; lightning arresters; tree attachments; critical crossings; pole stoppers; fire mesh installations; substation hardening; advanced technology; and system protection study.

Jay Wiggins, Director of Natural Disaster Protection Compliance and Operations Support. Mr. Wiggins sponsors the elements of the Plan related to vegetation management; resource sufficiency; risk based approach

(emergency response and resource sufficiency); and public safety outage management.

Mark Regan, Fire Mitigation Specialist/Fire Chief. Mr. Regan sponsors the elements of the Plan related to updating the heightened Wildfire Risk Tier Areas; elevating the Virginia City Highlands' Wildfire Risk Tier Area; and the use of drones and satellite technology.

Cary Shelton-Patchell, Director, Revenue Requirement and Regulatory Accounting. Ms. Shelton-Patchell calculates the anticipated rate impacts of the Plan for plan years 2024, 2025, and 2026.

Alex Hoon, Natural Disaster Protection Plan Senior Meteorologist. Mr. Hoon sponsors evidence regarding the effects of climate change in Nevada, changes in the weather patterns and fire events that have occurred over the past 20 years, and supports the steps the Companies are taking to actively mitigate these increasing threats. Mr. Hoon also provides support for the situational awareness activities in the Plan.

V.

CONFIDENTIALITY

None of the information set forth in the NDPP, Technical Appendices or Prepared Direct Testimony is commercially confidential and/or trade secret information subject to protection pursuant to NRS § 703.190.

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VI.

REQUESTS FOR RELIEF

The Companies respectfully request that the Commission issue an order granting the following relief:

1. Approving the Plan as it is set forth in Exhibit B to this Joint Application;

2. Finding that this filing fully satisfies the reporting requirements of NRS § 704.7983 and the NDPP Regulations;

3. Approving NV Energy's request to create a new Tier 1 heightened wildfire risk area;

4. Approving NV Energy's request to elevate the Virginia City Highlands area from the Tier 2 wildfire risk area to Tier 3;

5. Approving NV Energy's request for the Commision to approve as part of the execution of the Plan and deem prudent $92,585,685 in capital projects related to natural disaster risk mitigation and grid resiliency to be recovered through general rates;

6. Finding that NV Energy has complied with the directive in Docket No. 20-02031 requiring this Plan to include a proposed undergrounding plan for all remaining distribution lines within all Tier 3 areas;

7. Finding that NV Energy has complied with the directive in Docket No. 20-02031 requiring NV Energy to work with local governments to pursue cost-sharing or cost-reducing mechanisms for undergrounding plans in Tier 3 areas;

8. Finding that NV Energy has complied with the directive in Docket Nos. 22-03006 and 22-08001 requiring this Plan to identify what other funding sources, including but not limited to federal grants, are available to defray the costs of the NDPP and to detail the funding sources and amounts NV Energy has applied for and received;

9. Finding that NV Energy has complied with the directive in Docket No. 22-08001 requiring NV Energy to demonstrate how Weather Research and Forecasting,

Atmospheric Data Solutions, and any proposed tool or software supports the continuous NDPP optimization; and

10. Granting such additional other relief as the Commission may deem appropriate and necessary.

Dated and respectfully submitted this 1st day of March, 2023.

NEVADA POWER COMPANY
D/B/A NV ENERGY
SIERRA PACIFIC POWER COMPANY
D/B/A/ NV ENERGY

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EXHIBIT B

THE PLAN PT. 1

2023 Natural Disaster Protection Plan Triennial Update

March 1, 2023

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EXECUTIVE SUMMARY

NV Energy's Natural Disaster Protection Plan ("NDPP" or "Plan") promotes public safety and drives down risks from natural disasters in an efficient and cost-effective manner. Severe weather is becoming more extreme and impacts from natural disasters are worsening, extending beyond wildfires. The Companies have hired a full-time meteorologist to better understand and forecast natural disaster risks. Aging infrastructure presents increasing risks when combined with these external factors.

Technology is improving to better capture and integrate information into the Plan. Improved information and ongoing collaboration help to identify and respond to risks. Expanded collaboration includes working with similarly situated utilities and continued engagement from the Expert Working Group ("EWG.") The Plan reflects industry best practices in a number of areas including vegetation management, resilient corridors and seasonal work practices that leverage the capabilities of public safety partners. Collaboration with expert partners is a recognized best practice to prioritize and focus where efforts matter the most and create synergies with other organizations. Broader information reach improves situational awareness that is leveraged in operations, emergency response and other initiatives.

Regular collaboration on the development of the Plan is reflected through resilience and ruggedization initiatives that can best support vulnerable communities. Lessons learned through the pandemic reflect innovations in communications and community support, for example, through temporary Community Resource Centers that are focused and nimble. Communications and public outreach have expanded beyond safety notifications, as ruggedization projects get underway and require outages to complete.

Advanced technologies continue to evolve with the opportunity to further improve efficiencies through Artificial Intelligence ("AI"), remote operations, and increased digitalization that can be deployed to protect infrastructure, promote safety and minimize outage impacts.

In the inaugural Plan, NV Energy learned many lessons through the execution of the various programs, including:

- The importance of working with permitting agencies to better understand and forecast approval timelines for various activities.
- The need to ensure clear, concise, and regular communications with affected customers to drive improved understanding of how risks are being mitigated and what short term impacts they can expect as work progresses.
- The need for integrated planning on the various programs to ensure that resources are expended as effectively and efficiently as possible.
- The importance of focused analysis on contracted labor resources required to execute on the programs, and the benefits of levelizing work to ensure stable retention of resources over the course of an entire year.
- The need to improve situational and conditional awareness to effectively assess comparative risk on various electrical infrastructure components throughout the service territories.
- The need to further leverage the innovative and unique nature of the relationships established with the local fire agencies to conduct fuels mitigation and also support emergency and operational activities.

NV Energy's second Triennial Plan reflects experience gained during a unique period in time, with the occurrence of both extreme and catastrophic natural disasters and a world-wide pandemic occurring for the period of the inaugural plan. It has become clear that severe weather is a key risk driver that is not unique to NV Energy. Across the West, utilities are developing wildfire mitigation plans. Those wildfire plans are

now expanding to address other natural disasters to capture the full benefits of resilience and ruggedization. This 2024-2026 Plan is reflective of lessons learned and a deeper understanding of the connectedness of the Plan elements. Improvements have increased both situational and conditional awareness for a more developed understanding of natural disaster risks and consequences.

To identify natural disaster risks NV Energy hired a full-time meteorologist to focus on natural disaster risk drivers. This Plan provides maps of Heightened Threat Areas ("HTAs") where infrastructure is located and heightened natural disaster risks are present. This information is combined with intelligence about infrastructure conditions for a more fully developed understanding of risk. Improved awareness informs all other aspects of the Plan, especially emergency operations and Public Safety Outage Management or "PSOMs."

Some of the programs from the inaugural plan are nearing completion. These include the gray wire replacement, covered conductor pilots, and pole top reclosers high-speed clearing programs. A full season of construction has led to improved response to the needs of the community and effective working parameters with partner agencies. Experience has resulted in collaborative improvements such as permitting waivers, formalized agreements and other accommodations to expedite timelines. Some components of cyclical programs, including vegetation management and patrols and inspections are transitioning into an established cadence. Corrections are being evaluated to gauge whether chronic conditions occur on specific circuits or segments, which can lead to decisions to rebuild or replace as a more cost-effective alternative when compared to repeated ad-hoc repairs. Efficiency improvements based on more predictable work cycles show promise.

Communications programs have expanded beyond emergency situations to better help communities prepare for outages and understand different aspects of the NDPP. Some organizations, such as the United States Forest Service ("USFS"), have requested increased communications from NV Energy public information professionals. The increased emphasis on communications is reflected in a dedicated Communications Section of the Plan.

The Companies continue to mutually benefit from engagement with the EWG. This Plan reflects the benefit of risk reduction through improved understanding of natural disaster risk drivers and also prioritization of projects and programs based on the EWG's review and refinement.

The EWG collaborates as safety partners as part of seasonal operating practices in addition to emergency operations. Other seasonal operating practices that minimize potential impacts should a natural disaster event occur, can be adapted as grid ruggedization and hardening programs are completed on a longer time horizon.

The focus of the 2024-2026 NDPP is on completing work already identified in the prior plan and amendments. The Companies have adjusted the natural disaster risk drivers based on experience to date, expert meteorologist advice and collaboration with the EWG. Based on refreshed fire threat analysis from REAX Engineering and discussions with the EWG, NV Energy is proposing modifications to risk Tiers. These modifications include recategorizing Virginia City Highlands ("VC Highlands") into Tier 3 and the creation of a Tier 1 threat area to replace the Wildland Urban Interface ("WUI"). Based on the updated classifications, some infrastructure will be subject to more frequent patrols and inspections and vegetation management cycles.

Observations of compromised grid performance under the Circuit Resilience Program have resulted in ruggedization programs for monsoon-prone areas in southern Nevada to protect against cascading toppling poles. Hardening along critical evacuation routes in natural disaster areas remains an ongoing priority to protect public safety. With three years of experience, the Companies are proposing a phased and levelized project implementation approach for copper wire replacement, circuit rebuilds, circuit patrols, and detailed inspections, using a full calendar year to implement programs across HTAs to lower costs and drive

efficiencies. Broadened communications efforts include preparing communities for necessary outages to complete this resilience work. It will continue to include programs to prepare for wildfire season and understand key features of the Plan, including emergency operations and PSOM impacts.

This second Triennial Plan includes advanced technology initiatives to minimize outage impacts such as increased sectionalization, microgrid alternatives for back-up power and a comprehensive assessment for protective devices to assure maximum efficacy of devices in HTAs and assure no new risks are introduced.

This Plan begins to realize the full benefits of the Technosylva wildfire platform, a next generation software that provides wildfire forecasting and threat analysis that can be used in combination with other programs and platforms. Ties with infrastructure maps and the infrastructure database, Maximo, will drive superior risk analysis. By understanding both natural disaster threat propensity with infrastructure conditions affords the ability to protect public safety while reducing outages and prioritizing mitigating actions.

Finally, the Plan looks to place more emphasis and resources on longer term investments while looking to maintain recurring activities that reduce controllable risk on the electric system. The Companies have now completed permitting and designs that allow it to more effectively execute on long-term investments that will reduce risk on the infrastructure over much longer time horizons.

NV Energy's focus is on implementing previously requested projects and programs, leveraging the Companies' improved understanding to gain efficiencies. Initiatives continue to focus on public safety and to systematically reduce risk. Priorities are established based on risk analysis and in collaboration with the EWG.

While the cost of the patrols, inspections and corrections, lightning arresters, and resource sufficiency initiatives have decreased, the cost of the remaining initiatives in the Plan have increased, particularly system hardening and vegetation management. For system hardening, the increase is attributable to the capital projects moving from a design and permitting focus to actual construction. For vegetation management, cost increases are driven by inflationary pressures, supply chain constraints, as well as the cost of covering both initial and continued maintenance treatments.

This Plan also incorporates the possibility of customer benefits from potential grant awards. Since the inaugural NDPP, grant opportunities have become more prevalent given the more recent federal announcements of the Bipartisan Infrastructure Law ("BIL"), the Infrastructure Investment and Jobs Act ("IIJA"), the Inflation Reduction Act ("IRA"), and others. While affording cost reduction advantages, grant awards are contingent upon a successful competitive grant application, the Companies' matching contribution, and ongoing management and reporting to access funding.

NV Energy is pleased to provide this Triennial NDPP that reflects an improved and effective approach to identifying and managing natural disaster risks to protect public safety, minimize the size and scale of proactive de-energization events, called PSOMs, and improve the efficacy and protection of crucial infrastructure in a cost-efficient manner.

BACKGROUND

The State of Nevada has evaluated the potential adverse effects of catastrophic natural occurrences. The vulnerability of the public in natural disaster threat areas where utility electrical equipment is located led to the signing of Senate Bill ("SB") 329 into law on May 22, 2019.[1] SB329 requires electric utilities to develop and file a NDPP with the Public Utilities Commission of Nevada ("Commission" or "PUCN") and then file the Plan every three years thereafter.

This updated Triennial Plan presents existing and proposed initiatives that are intended to mitigate natural disaster risk impacts reflecting a continuation of the inaugural plan and related amendments. The experience of Nevada Power Company ("NPC" or "Nevada Power") and Sierra Pacific Power Company ("SPPC" or "Sierra," together "NV Energy" or "Companies") implementing their Plan reflects lessons learned and insights gained through collaborative efforts, such as the EWG, continuing NV Energy's commitment to exceptional service, grid resilience, and public safety. The Plan is updated through progress reports and amendments as information and industry experience is gained and technologies progress.

SB 329 requires electric utilities to "[i]dentify areas within the service territory of the electric utility that are subject to a heightened threat of a fire or other natural disaster." NV Energy conducted extensive research and analysis to propose a set of high likelihood and high impact natural disasters that could compromise public safety and reliable electric service. While many utilities focus solely on wildfire mitigation, the Nevada Legislature requires broader consideration to include other natural disasters. Power outages caused by natural disasters have far-reaching implications to public safety, access to essential services, financial, and economic consequences, and overall societal consequences. SB 329 defines natural disasters as "any natural catastrophe that includes wind, wildfire, storm, high water, earthquake, avalanche, landslide, mudslide, or heat wave."

In developing a risk-based approach to launch its NDPP, NV Energy first assessed which natural disasters could impact its service territory most. The Plan addresses legislative directives to identify how elements of the Plan could lower ignition events or mitigate against damage to equipment and loss of power caused by natural disasters. The Companies identified potentially catastrophic natural disasters in collaboration with the EWG. The EWG team includes and expands upon identified expert organizations from SB 329 with first responders, government agencies, firefighters, emergency managers, and others. While it is abundantly clear that wildfires present a severe risk, the EWG identified other natural disasters that could lead to catastrophic consequences and disrupt electric utility service.

SB 329 also requires a risk-based approach, which has continued to evolve as industry practices and enabling technologies mature. NV Energy uses a holistic approach to assure natural disaster risk is managed on a variety of fronts. In addition to grid hardening efforts, which may take a significant amount of time to design, permit, and construct, operational practices provide shorter-term mitigation until resilience projects are completed.

The NDPP affords the Companies the ability to leverage emerging best practices and advancing technologies. In addition to leveraging the EWG, insights from other utilities and natural disaster events continue to inform the identification of natural catastrophes that impact the power grid and related resilience programs and activities. In 2023, NV Energy is refreshing the list of natural disasters identified in the 2020 inaugural plan to protect critical infrastructure and public safety.

In accordance with SB 329, codified as Nevada Revised Statute ("NRS") § 704.7983, and Section 7.2 of the Regulations,[2] the Triennial Plan update contains the required elements:

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[1] NV Electronic Legislative Information System. "SB 329 Bill Text." https://www.leg.state.nv.us/App/NELIS/REL/80th2019/Bill/6598/Text. May 22, 2019.

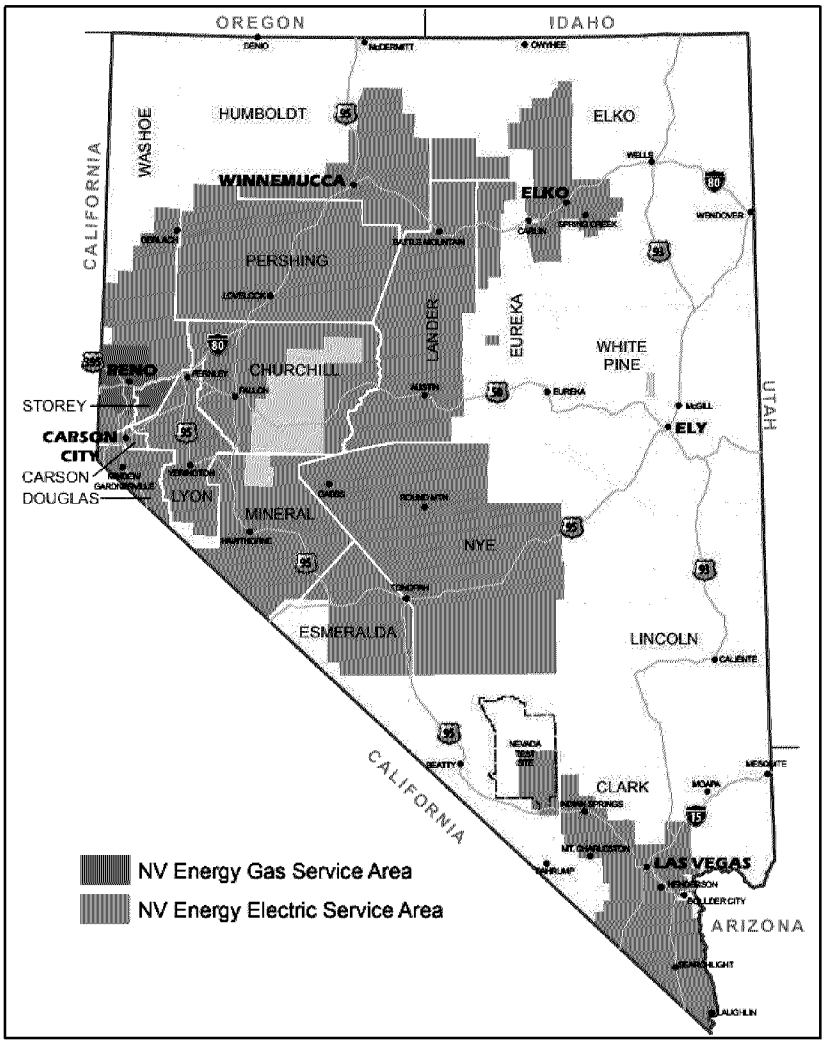
[2] https://nevada.public.law/statutes/nrs_704.7983

- *Risk based Approach* – Involves the use of modeling to identify geographic areas particularly vulnerable to natural disaster threats, preparation of plans, and continued weather monitoring and analytics.
- *Situational Awareness* – Involves the use of information about fire conditions and weather during other natural disasters to help guide mitigation measures, including fuel mapping, and information from weather stations and cameras.
- *Operational Practices* – Involves practices used to mitigate wildfire risk, including non-reclosing strategy, wildfire safety training, and implementation of applicable procedures.
- *Emergency Operations and Proactive De-Energization* – Involves de-energization of pre-identified circuits, or sections of circuits, to mitigate against potential electric facility-caused ignitions.
- *Vegetation Management* – Involves clearance distances, pole grubbing, fuel breaks, and the removal of hazard trees to minimize the chances of vegetation striking lines.
- *Conditional Awareness: Inspections and Corrections* – Involves inspection frequency, identification of fire risk conditions, and correction-related processes designed to mitigate against utility ignition and improve electric infrastructure related resilience during other natural disasters.
- *System Hardening* – Involves deployment of equipment with less ignition risk, including covered conductors, poles, non-expulsion cutouts, relays, pole wraps, and protective devices.

This Plan contains additional sections including advanced technologies, communications, financials, and metrics.

NV Energy (NVE) has served the citizens of Nevada for more than 150 years. Today, our service area covers nearly 46,000 square miles of among the fastest growing populations in the U.S., including the communities of Las Vegas, Reno-Sparks, Henderson, and Elko. NV Energy provides a wide range of energy services to nearly 1.3 million electric customers throughout the state and more than 50 million tourists annually. A map of NV Energy's service territory is presented in Figure 1. The Companies take pride in providing reliable service and protecting public safety through the initiatives included in this 2024-2026 NDPP.

Figure 1. NV Energy Service Territory Map[3]



Source: NV Energy, 2014

[3] NV Energy owns electric infrastructure in California but does not serve any California retail customers.

1. RISK BASED APPROACH - NATURAL DISASTER RISK ANALYSIS AND DRIVERS

The utility industry has increasingly experienced catastrophic impacts from severe weather events. Across the U.S., grid resilience is an area of increased focus for policy makers and reliability organizations alike. The Chief Executive Officer of the North American Electric Reliability Corporation ("NERC"), Jim Robb, has noted the increasing frequency of significant extreme weather events that underscores the need for the electric sector to change its planning scenarios and preparations for extreme events."[4] Pursuant to the definition presented in the original NDPP Docket No. 19-06009, a natural disaster is identified by any natural catastrophe, including but not limited to wind, wildfire, storm, high water, earthquake, avalanche, landslide, mudslide, or heat wave.

The Companies continue to consult and collaborate with members of the EWG,[5] shown in Figure 2, based on "identified" organizations in SB 329 and a broader constituency of public safety partners and organizations with expertise in natural disasters and critical resources. This group convenes to share knowledge, resources, technology updates, and provide feedback. NV Energy engaged with the EWG for the original NDPP, this Triennial Plan, and continues to solicit input from these organizations, the public, and industry experts on a periodic basis to inform updates for the Plan.

Figure 2. EWG Collaborating Organizations[6]

[4] The Federal Energy Regulatory Commission, the North American Electric Reliability Corporation and NERC's Regional Entities announced that they will open a joint inquiry into the operations of the bulk power system during the extreme winter weather conditions that occurred during Winter Storm Elliot.

5 The EWG reflects a collection of first responders, emergency managers, utilities providing critical services, and others that expand on partner organizations identified in SB 329.

[6] Not exhaustive.

The EWG collaborated with NV Energy to align on the most prevalent natural disasters across NV Energy's service territory. This Plan builds upon those presented in the original NDPP and contains several modifications and corresponding analysis. A full set of natural disasters appears in Appendix A.

1.1. NATURAL DISASTER THREATS

The NDPP's objective is to reduce risk from natural disasters systematically and continually. Ongoing assessments consider frequency and impact of natural disasters in light of NV Energy's knowledge of the location and condition of energy infrastructure. These inputs inform forecasting models that can predict impacts to populated areas and direct actions and investments to reduce risk exposure to natural disasters.

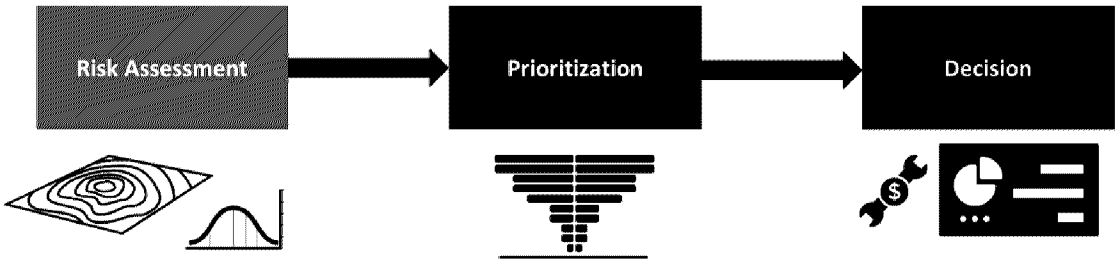
The Companies consider multiple local, state, and federal hazard rankings of natural disaster threats. Analyses of potential disasters and discussion of mitigating actions formed the basis for in-depth engagement with the EWG. This Triennial Plan updated the natural disaster risk drivers of the original Plan, adding heat waves, and drought. Actual experience indicates the validity of previously identified natural catastrophes so none were removed. Expertise from the Companies' meteorologist laid the foundation for discussions with EWG that resulted in the following natural disasters mapped into Heightened Threat Areas ("HTAs") identified for this filing:

- Wildfires and grassland fires that are reflected in Risk Tier Areas
- Wind occurrences, including high wind gusts
- Winter storms and blizzards with ice and snow accumulations
- Thunderstorms and microbursts
- Monsoons and flooding
- Heat waves and droughts
- Earthquakes
- Landslides and avalanches

1.2. RISK DRIVEN DECISION MAKING FRAMEWORK

NV Energy's risk assessment process begins with a foundational understanding of areas and assets within the service territory that are vulnerable to natural disasters and catastrophes. Models and forecasts are compared with empirical evidence to understand the natural catastrophes that can impact NV Energy's infrastructure. Since the first NDPP, the Companies have engaged a full-time meteorologist who is responsible for identifying and analyzing natural disasters that could have catastrophic results. The Companies collaborate with industry experts and technology partners, including the National Weather Service ("NWS"), REAX Engineering, Technosylva Inc., the University of Nevada, Reno's ("UNR") Department of Physics and Seismological Lab, regional fire agencies, the Division of State Lands, the Division of State Parks, the Division of Forestry, and other government, and industry entities. The goal of the risk driven decision making framework is to assess where high impact or high likelihood natural disasters could compromise public safety or result in power outages. Figure 3 below illustrates the relationship between risk assessment, prioritization, and decision making.

Figure 3. Risk Mitigation Decision Example



The Companies use risk probability and likelihood obtained from information such as disaster reports, vulnerable asset locations, outage events, Major Event Days ("MEDs") and Catastrophic Event Days ("CEDs"), as well as corresponding incremental costs, to inform the underlying utility-specific assumptions and disaster risk maps.[7] These risk factors are analyzed and used to prioritize initiatives presented in this Plan. While maps are provided throughout the NDPP, Appendix A provides the compiled risk maps.

The overall aim of NDPP focuses on both safety and preserve Nevada's environmental and natural resources. With that in mind, the Companies track outage events and trends related to natural disasters. MEDs, and more recently CEDs, are recorded for each disaster type and considered for further evaluation. Proactive de-energization of power lines can also contribute to outage impacts. Through advanced analytics, taking into account natural disasters that impact the grid, and combining with more near-term situational and conditional awareness, the Companies can focus on both short-term and long-term risk reduction activities to harden the grid and restore service as quickly and safely as possible.

1.2.1. WILDFIRE THREAT PROFILES

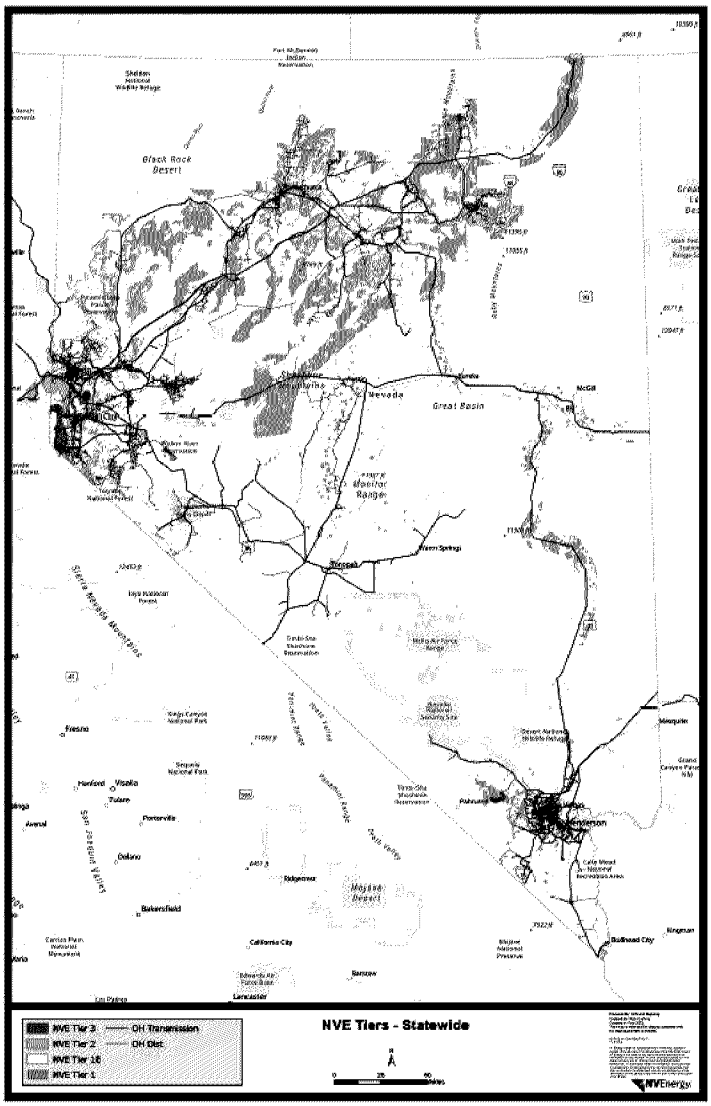
The Companies compiled an assessment of HTAs for wildfires that are presented as Tier 3 (extreme), Tier 2 (high), Tier 1 – Elevated ("1E"), and Tier 1 (Nevada Division of Forestry ("NDF") Wildfire Risk Rating Map of moderate).[8] This process included developing map Tiers, integrating several mapping layers intended to characterize heightened wildfire risk and potentially catastrophic wildfire risks across Nevada and the Companies' California distribution, telecommunication, and transmission assets.[9] NV Energy has aligned Risk Tiers to the Wildfire Risk Rating Map for the State of Nevada. The Tier definitions consider (1) the distribution of extreme fire weather conditions, (2) the historical distribution of wildfires, and (3) wildfire hazard potential, which includes information about fuels and fire behavior. Taken collectively, the risk is depicted through map layer combinations that indicate severity of ignition and fire spread potential. The map layers form important visualization tools that indicate the wildfire risk to specific infrastructure, population centers, and other risk-prone factors.

[7] Resource data includes NWS, National Oceanic and Atmospheric Administration ("NOAA"), the Federal Emergency Management Agency ("FEMA"), the United States Geological Survey ("USGS"), and UNR.

[8] These risk Tiers were developed to establish a foundation for wildfire specific threats within the service territory. NV Energy also seeks to normalize language consistent with local jurisdictions' Community Wildfire Protection Plans ("CWPPs") and the terminology used by regional fire agencies to ensure consistency.

[9] See Appendix A: Map 1 for the high and extreme designations of the developed fire hazard map.

Figure 4. Wildfire Threat Tiers



Map Creation Actions

1. Confirmed that all distribution assets do not fall within the five-mile buffer of transmission lines.
2. Low, Very Low, Non-burnable, and water only wildfire hazard potential layers are excluded from the risk Tier classifications.
3. Lake Tahoe and Mt. Charleston areas are fully classified as Tier 3 due to high impact or consequential risk. Where map layers did not fully represent Tier 3 risk classification, a supplemental analysis was used to verify a Tier 3 designation. Based on this supplemental analysis process, VC Highlands is also presented as Tier 3.
4. Population data is from U.S. Census Bureau, 2017 American Community Survey Five-Year Estimates aggregated by census tract.
5. Per the Companies' existing procedures to map existing fire events, a five-mile buffer to the Companies' assets is used.

Grassland fires also pose a unique wildland threat due to the rapid rate of spread that can occur upon ignition. Sagebrush habitats, non-invasive annual grasses, and cheatgrass have been identified as principal drivers in exacerbating grassland fires by regional fire agencies and the Bureau of Land Management

("BLM").[10] Several grassland areas are included in Tier 2, Tier 1E, and Tier 1. Empirically, grassland areas have experienced fires that damaged or destroyed buildings and infrastructure.

The Companies have continued to deploy more advanced technologies to evaluate fire threats in collaboration with capabilities of the EWG organizations. The initial Tier 3, Tier 2, and Tier 1E polygon designations (including landmass within a 10-mile buffer of existing Tiers) and the Tier 1 WUI map have been refined after assessing fine-scale landscape features and other factors that may affect fire risk. In this Plan, NV Energy proposes to replace the WUI with a Tier 1 designation to better align with NDF. To guide this refinement process, additional criteria were used and are detailed below:

1. **Granular building footprints:** Census-based metrics provide structure density at the census block level but highly granular building footprints, such as the Microsoft building footprint dataset, provide more recent and accurate structure location/density data to supplement existing census data.
2. **Tree mortality:** Widespread tree mortality due to drought and the bark beetle infestation in the forests may increase surface fuel loads and ignition probability due to hazard trees contacting overhead electrical utilities.
3. **Topography:** Steep slopes and complex terrain may make direct attack difficult or impossible, allowing fires to grow more than they would in areas without such firefighting challenges.
4. **Assets at risk in addition to structures / population density:** Exposure due to loss of non-market environmental services,[11] destruction of merchantable timber, communities, infrastructure, watersheds, agriculture, habitat, and impacts to sensitive habitat all contribute to fire consequence and will be further evaluated.
5. **Fire spread modeling under representative high fire risk wind patterns**: Landscape features (water bodies, rocky/barren areas, fuel break, etc.), interaction between wind and topography, and the location of utilities' structures may significantly impact fire risk associated with an ignition location. Granular variations in risk are not captured by coarse-grained metrics. Similar modeling has been performed for other electric utilities to prioritize fire hardening and create proactive de-energization protocols.
6. **Risk to Potential Structures ("RPS")** is a measure that integrates wildfire likelihood and intensity with generalized consequences to a home on every pixel. For every place on the landscape, it poses the hypothetical question, "What would be the relative risk to a house if one existed here?" This allows comparison of wildfire risk in places where homes already exist to places where new construction may be proposed.
7. **Conditional Risk to Potential Structures ("CRPS")** is the potential consequences of fire to a home at a given location if a fire occurs there and if a home were located there. Referred to as Wildfire Consequence in the Wildfire Risk to Communities web application.
8. **Burn Probability ("BP")** is the annual probability of wildfire burning in a specific location. Referred to as Wildfire Likelihood in the Wildfire Risk to Communities web application.
9. **Conditional Flame Length ("CFL")** is the most likely flame length at a given location if a fire occurs, based on all simulated fires; an average measure of wildfire intensity. Flame Length Exceedance Probability – 4 ft ("FLEP4") is the probability of having flame lengths greater than 4 feet if a fire occurs, on a 0 to 1 scale; indicates the potential for moderate to high wildfire intensity. Flame Length Exceedance Probability – 8 ft ("FLEP8") is the probability of having flame lengths greater than 8 feet if a fire occurs, on a 0 to 1 scale; indicates the potential for high wildfire intensity.

[10] BLM. "Nevada Weeds and Invasives Program." https://www.blm.gov/programs/natural-resources/weeds-and-invasives/blm-control-strategies/nevada. https://www.blm.gov/programs/natural-resources/weeds-and-invasives/blm-control-strategies/nevada. 2019.

[11] Goods and services that are not traded in markets, such as clean air and water, healthy fish, and wildlife populations.

10. **Wildfire Hazard Potential ("WHP")** is an index that quantifies the relative potential for wildfire that may be difficult to control, used as a measure to help prioritize where fuel treatments may be needed.
11. **USFS Fire Occurrence Database** includes 28 years (1992-2020) of fire ignition records as reported by local, state, and federal agencies: https://www.fs.usda.gov/rds/archive/catalog/RDS-2013-0009.6.
12. **Local/institutional knowledge:** Newer communities and those with defensible spaces and/or enforced weed abatement ordinances are more resilient to fire losses than communities that have not widely implemented mitigation measures.

The Companies continue to evaluate the risk assessment methodologies, enabling technologies, and work with stakeholders to refine the wildland Tiers to include in subsequent plan filings.

1.2.2. WIND OCCURRENCES

High wind events are defined in this Plan as any wind event that reaches recorded speeds of at least 60 miles per hour ("mph"), regardless of whether recorded speeds are a gust or sustained. NOAA-reported high wind events are typically split into "non-convective" high wind and "convective" thunderstorm wind categories. "Non-convective" high wind events are addressed in this Section and thunderstorm wind events are addressed below in *Thunderstorms and Microbursts*.

Criteria for classification as a non-convective high wind event, meanwhile, may vary based on local or regional definitions. Generally, sustained winds of 40 mph or greater lasting for at minimum one hour qualifies, as does any single gust (sustained or unsustained) of 58 mph or greater, so long as those measurements did not occur in conjunction with a thunderstorm. Size of area affected is not considered when classifying wind events in this manner. In the absence of measurement equipment, observers often rely on a damage assessment to retroactively estimate wind speed. Caution must be used with this approach, however; observed damage after a wind event does not automatically imply wind speeds above 40 mph were achieved, just as high wind events do not necessarily imply damage will be caused. Damage, or the lack thereof, is a function of wind speed, lifted debris, and the structural integrity of affected assets.

High winds can threaten overhead lines. Wood poles that have experienced weakening through weathering, water damage, physical impacts, or animal, and insect boring may be susceptible to toppling in high winds. Fallen lines pose a significant ignition risk, particularly when fire conditions are elevated. Wind events can also lead to sandstorms. High wind risk is ubiquitous throughout the Companies' service territory, despite incident reporting being higher in more populated areas due to the higher concentration of weather arrays and trained spotters. The hazard is not homogenous. For example, risk in urban areas may be either reduced by obstacles or elevated by artificial wind tunnels created by the constructed environment. Asset-level susceptibility to future wind events throughout the Companies' service territory must consider local currents and surrounding infrastructure or topography when evaluating system hardening needs. High wind events can also include sandstorms, but sandstorms do not pose a unique threat to infrastructure. Moreover, any damage from high wind or debris carried by a sandstorm can be classified as a high wind incident.

Figure 5. High Wind Risks Legend

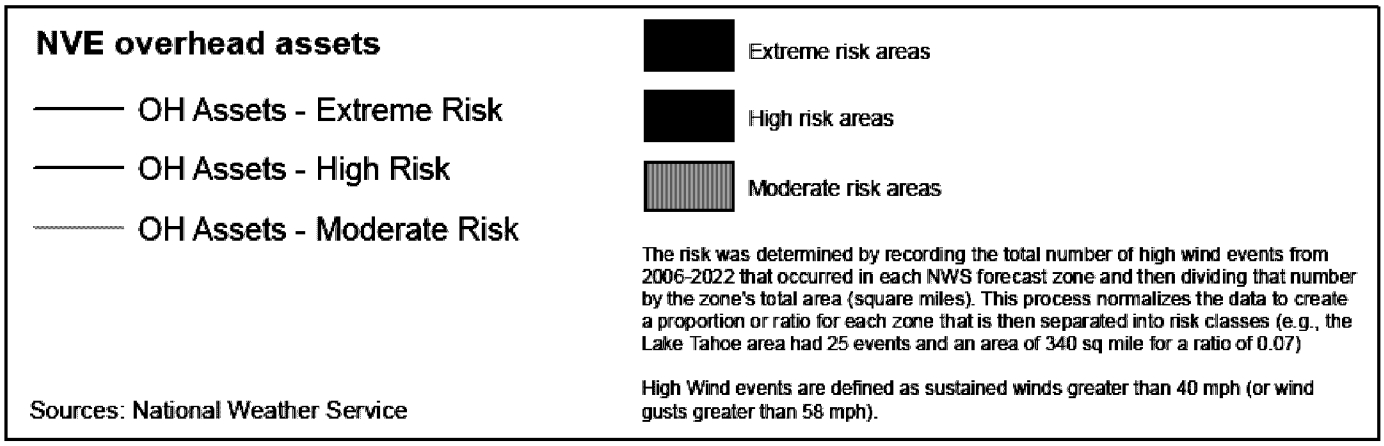


Figure 6. High Wind Risk

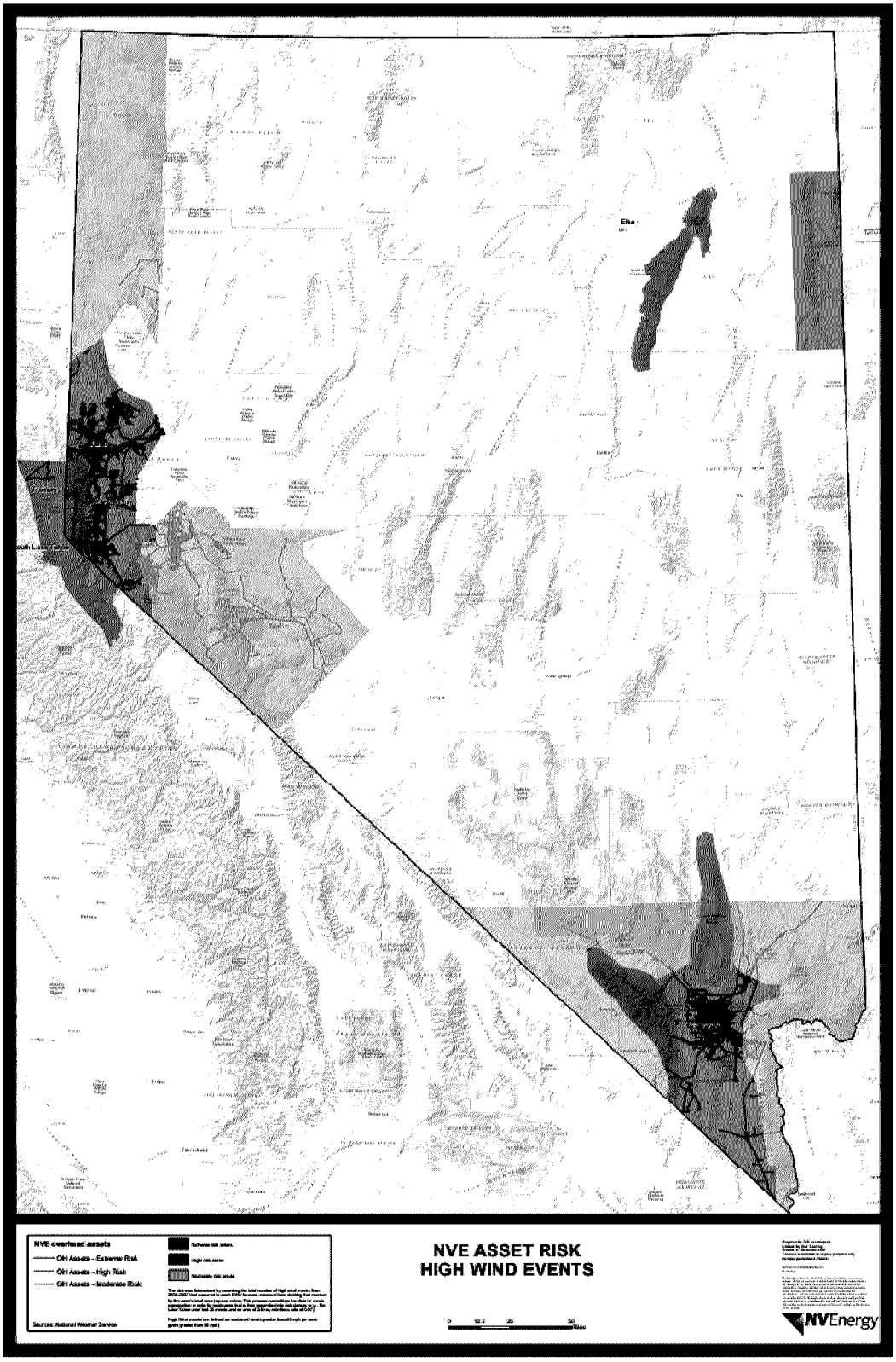


Figure 7. High Wind Risk Western Nevada

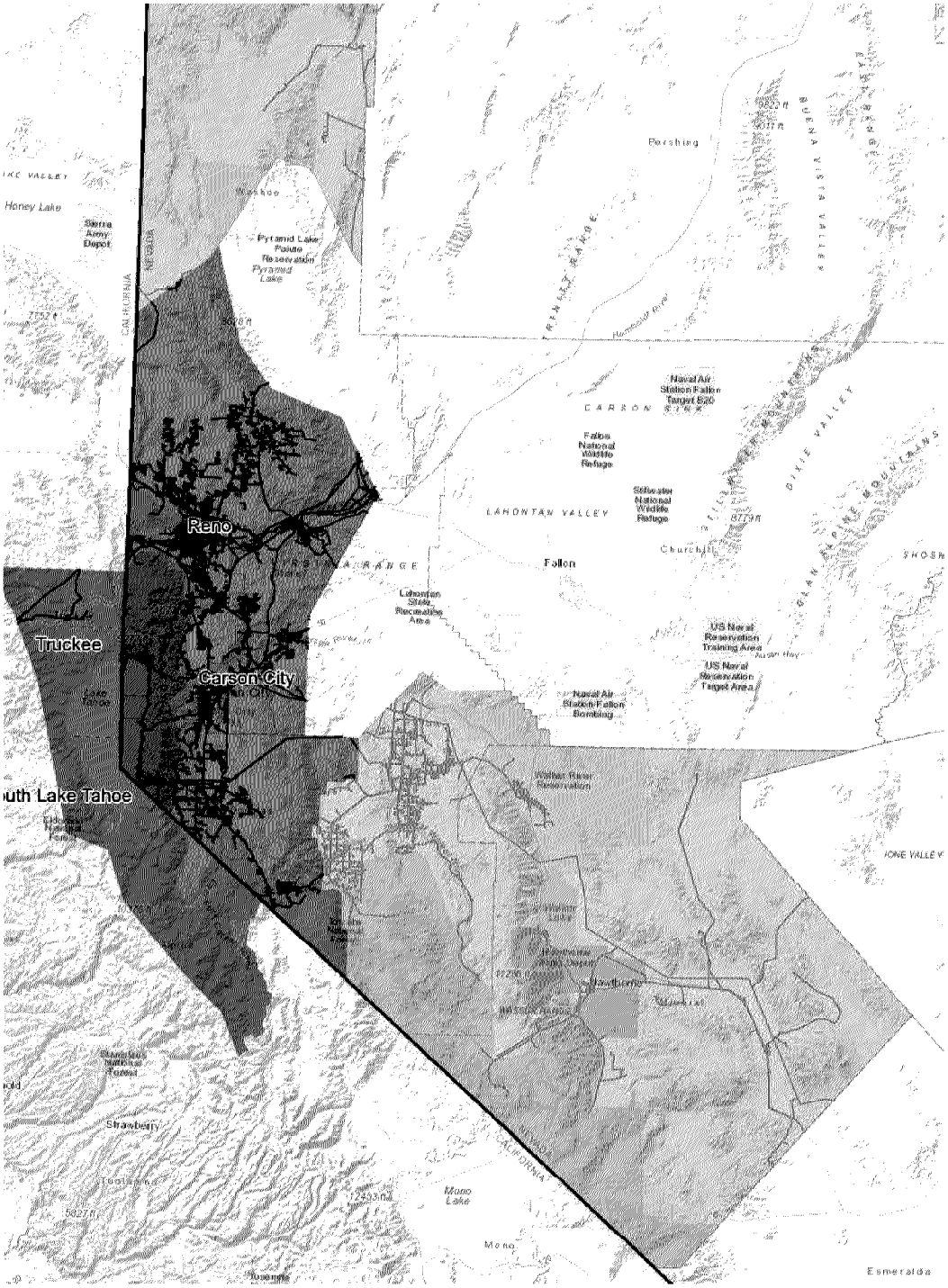
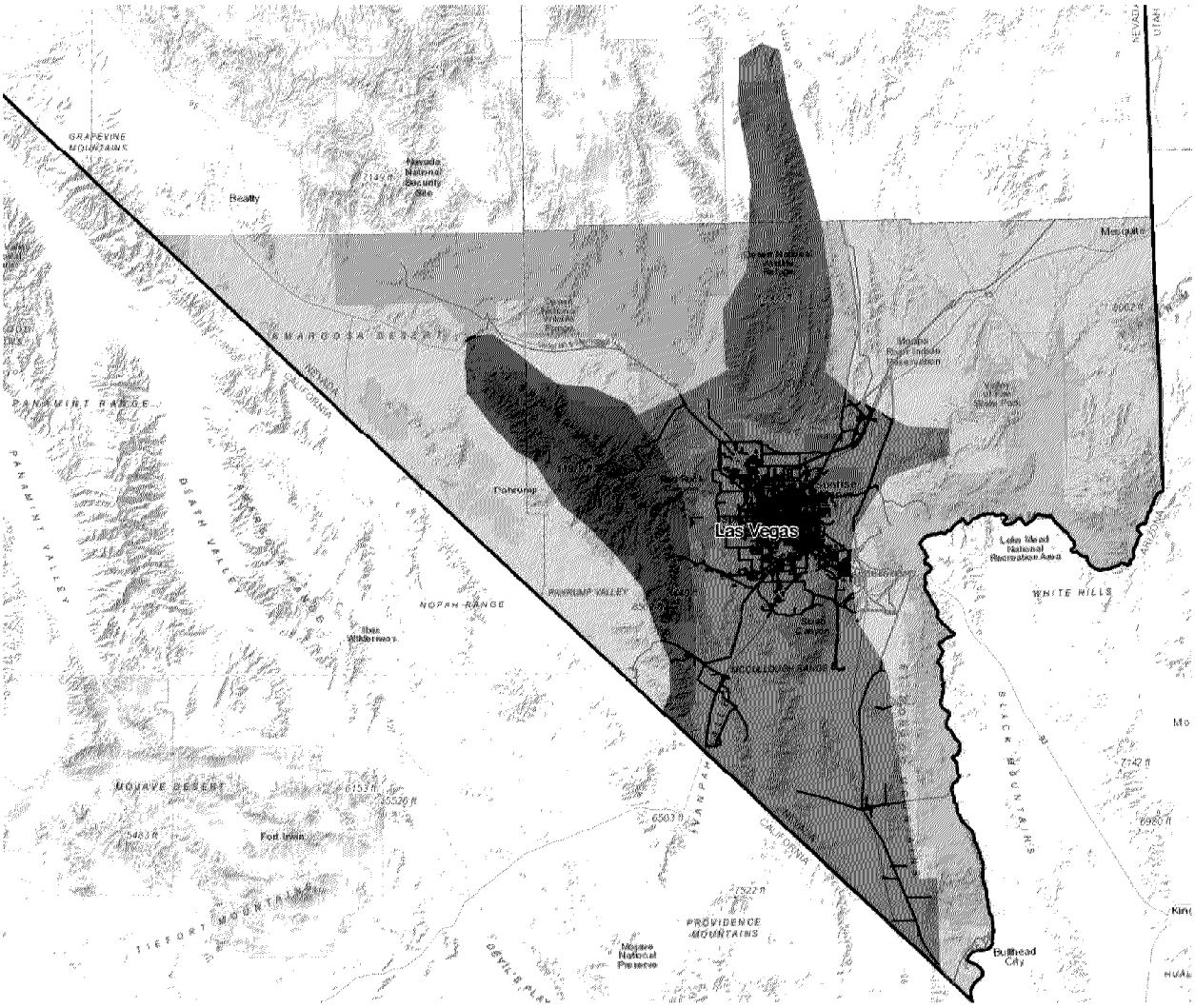


Figure 8. High Wind Risk Southern Nevada



1.2.3. WINTER STORMS

Winter weather is defined in this Plan as any snow event that either i) meets or exceeds defined 12- and 24-hour snow accumulation thresholds or ii) poses a threat to life or physical infrastructure. Three separate event designations – heavy snow, winter storms, and blizzards – are included under this disaster category. Heavy snow events refer to any accumulation of snow in excess of locally and regionally defined 12 and 24-hour accumulation thresholds.[12] According to NOAA, this could correlate to values of at least four to eight inches in a 12-hour period or six to ten inches in 24 hours, varying by locality. Heavy snow events have caused damage to infrastructure, resulting in customer outages lasting up to multiple days after the conclusion of snow fall due to strain from snow loading on physical infrastructure.

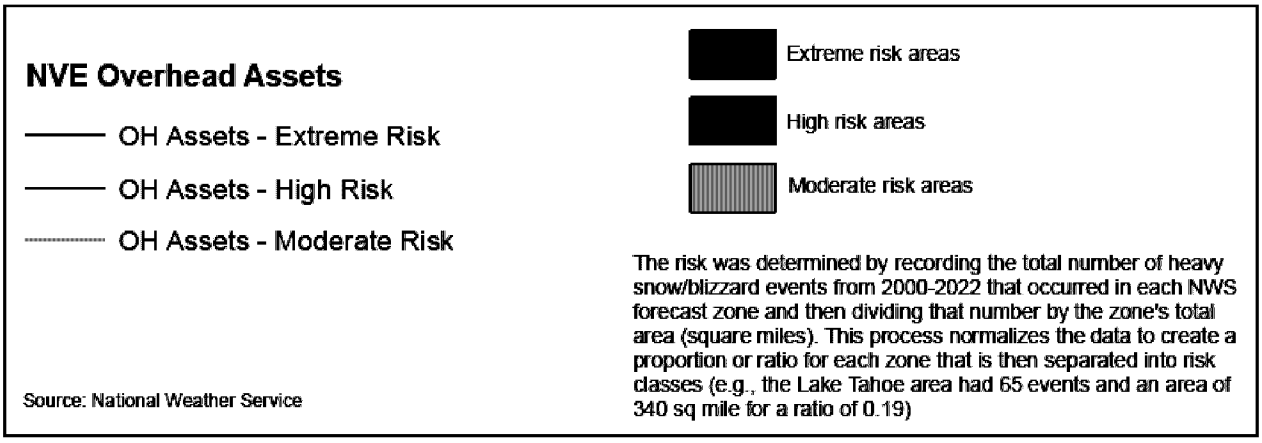
Winter storms and blizzards are distinct from heavy snow events in that they exhibit multiple hazards aside from snow deposits. Winter storms may combine two or more hazards including snow, wind, sleet, and

[12] NWS, NOAA, Department of Commerce. "Storm Data Preparation." https://www.ncdc.noaa.gov/stormevents/pd01016005curr.pdf. https://www.ncdc.noaa.gov/stormevents/pd01016005curr.pdf. March 23, 2016.

ice.[13] They do not require snow deposits to pass a certain threshold for inclusion as a potentially disastrous event, due to the combination of multiple risk factors. Blizzards are a specific category of winter storm defined by a sustained reduction in visibility to a quarter mile or less for three hours or more.[14] Winter storm events, particularly blizzards, may have sustained winds that meet or exceed criteria for inclusion as a high wind event, which are recorded sustained winds of 40 mph or higher.

Extreme events may bury assets or lead to an increased risk of avalanche activity. Weighted snow caused by a higher moisture content, colloquially known as "Sierra Cement," can weigh down lines and poles with minimal collected material. When combined with high winds and low visibility, winter weather can also increase the difficulty of monitoring and servicing infrastructure or responding to outages. These risks are concentrated in and around the Sierra Nevada Mountain range, where snow loading is more prevalent due to the high propensity of winter weather.

Figure 9. Winter Storm Risks Legend



[13] *Id.*

[14] *Id.*

Figure 10. Winter Storm Risk

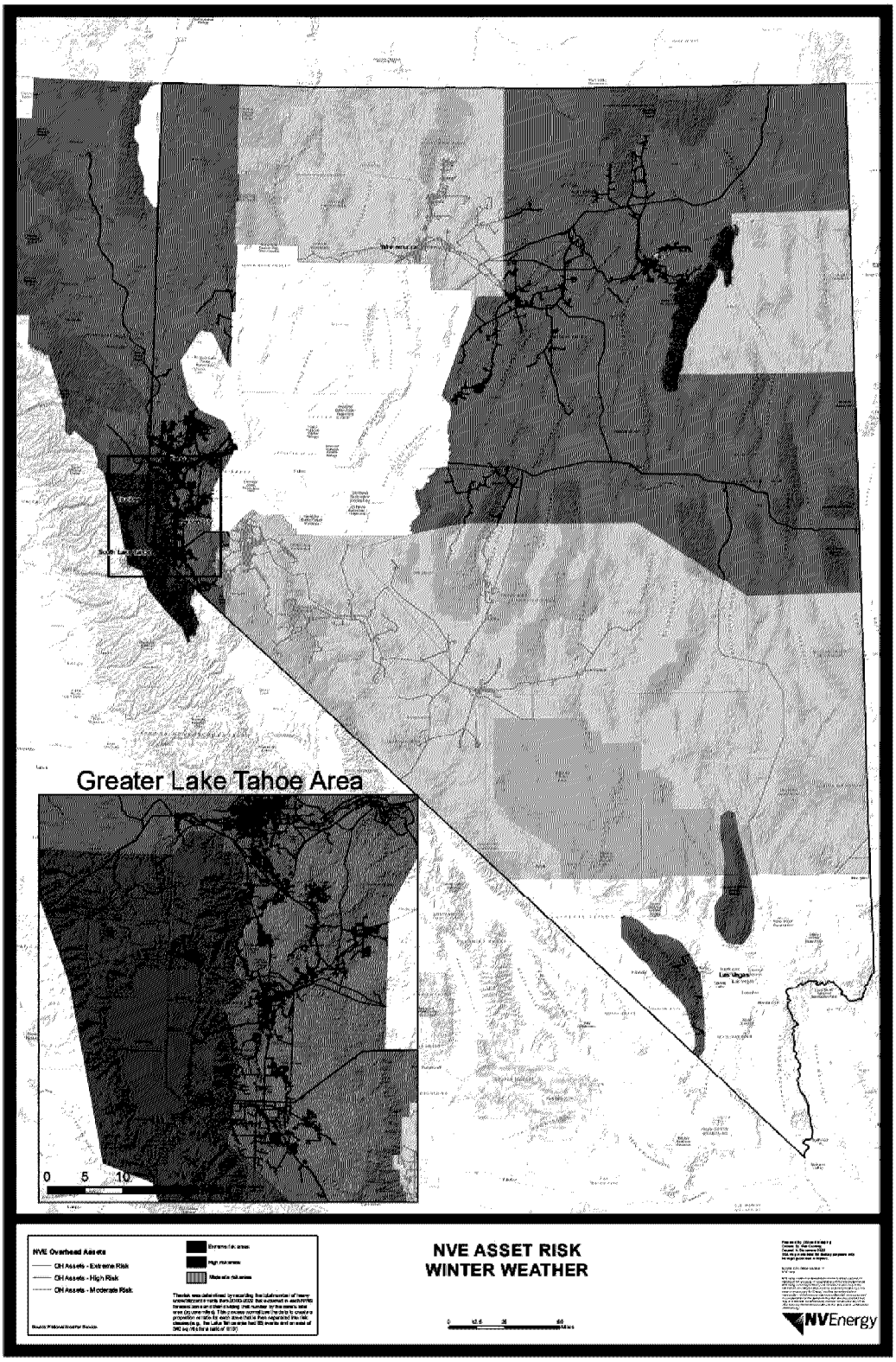


Figure 11. Winter Storm Risk Greater Lake Tahoe Area

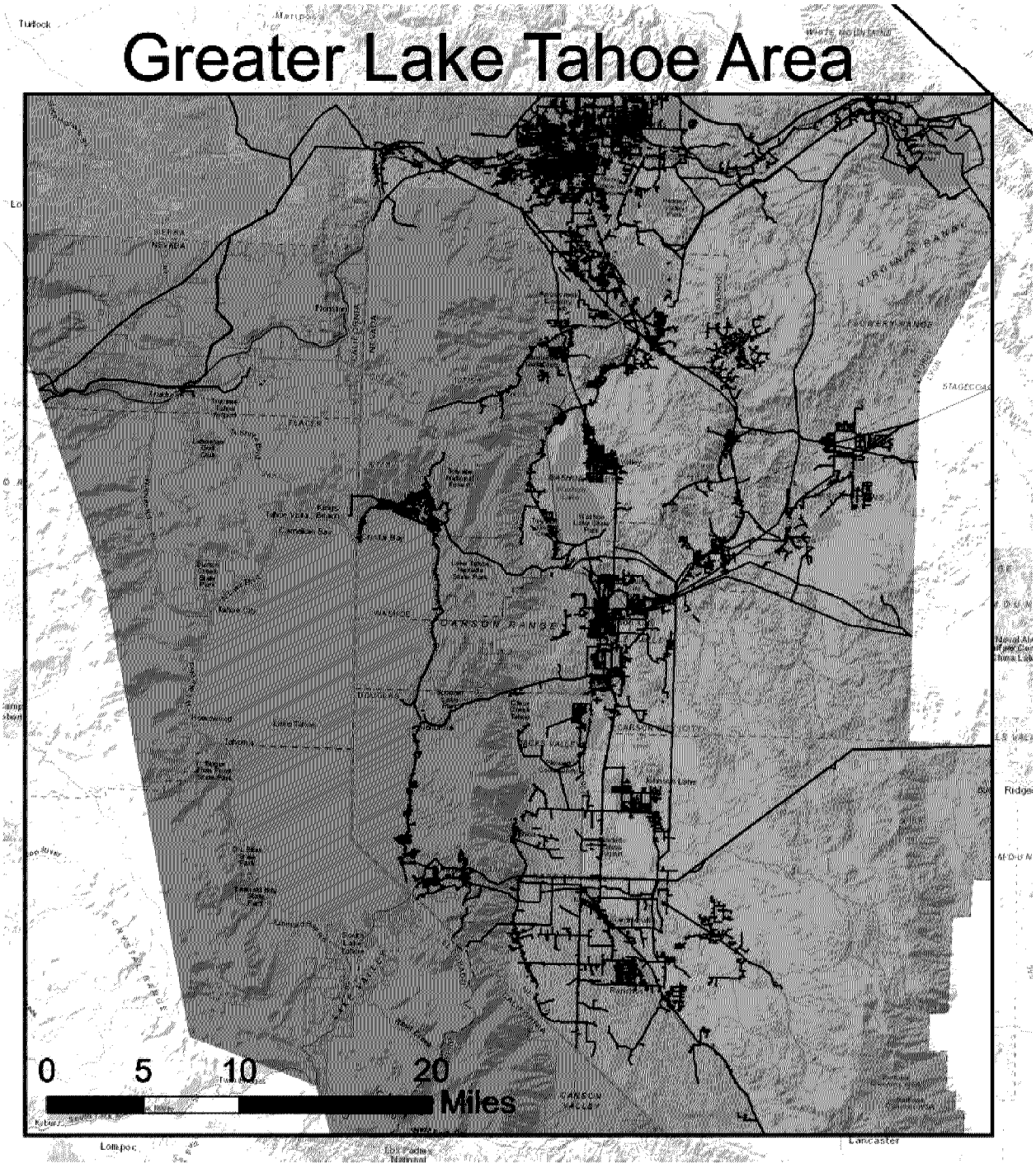


Figure 12. Winter Event Risk in Southern NV

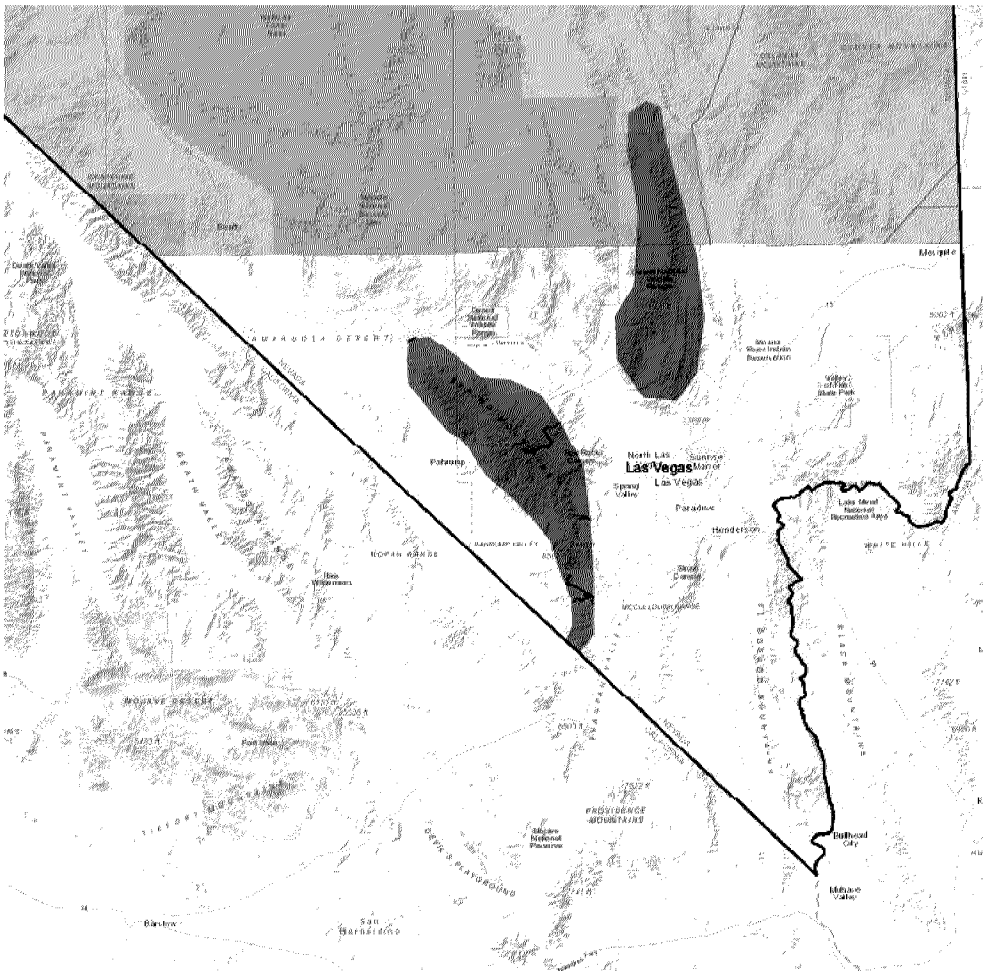
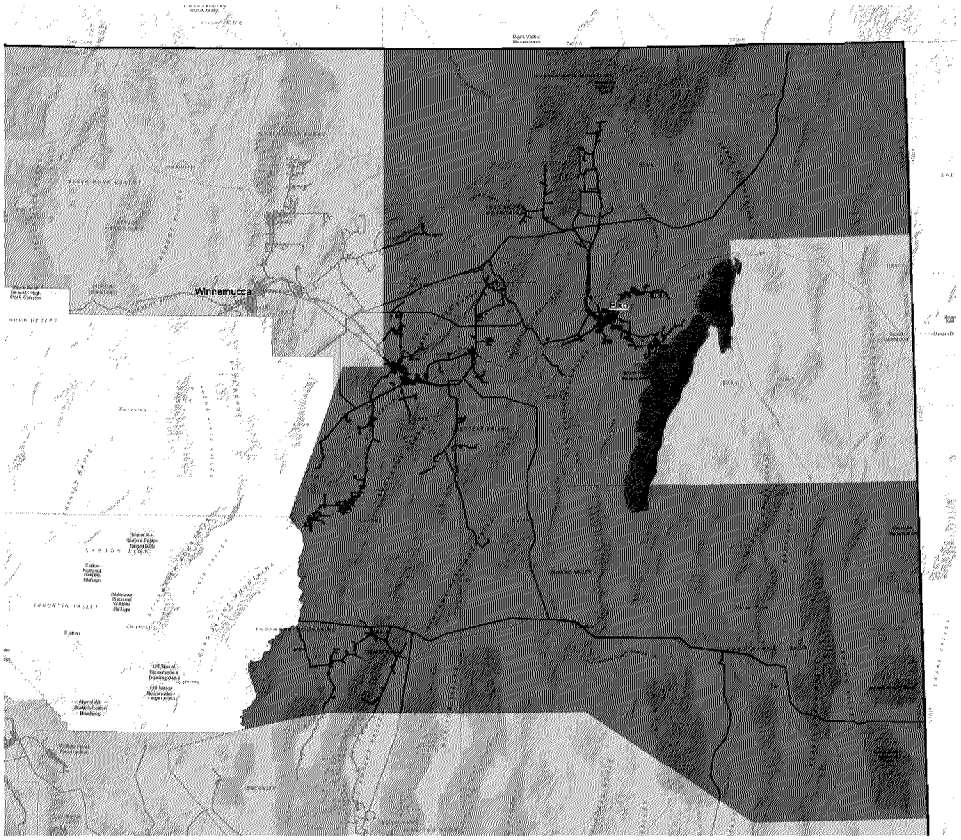


Figure 13. Winter Event Risk in Eastern Nevada



1.2.4. THUNDERSTORMS AND MICROBURSTS

Thunderstorms are transient and sometimes violent storms with thunder and lightning, often accompanied by heavy rains, strong winds, and hail. Thunderstorms are prevalent in Nevada during the summer season, especially when the southwestern monsoons are pushed into Nevada. Southern Nevada has the biggest exposure to severe thunderstorms, although they can occur all over the State of Nevada.

Winds occurring within 30 minutes of lightning being detected are classified as arising from convection. Convective winds above 58 mph and any other wind causing damage during a thunderstorm are jointly classified as significant thunderstorm wind events. Downbursts or microbursts, both dry and wet, are considered to be thunderstorm wind events. Thunderstorm winds, particularly during downbursts, may impact more localized areas than other high wind events due to their concentrated effects on the land area directly below or adjacent to a thunderstorm front.

Some intense thunderstorms in Nevada are known to produce excessive cloud-to-ground lightning, nearly continuous with twelve, or more flashes per minute. This can add up to thousands of lightning strikes within a given thunderstorm event across the State. Severe lightning presents a concern for grid reliability, as direct lightning strikes on electrical equipment has potential to cause surges and outages.

Figure 14. Thunderstorm Wind Risks Legend

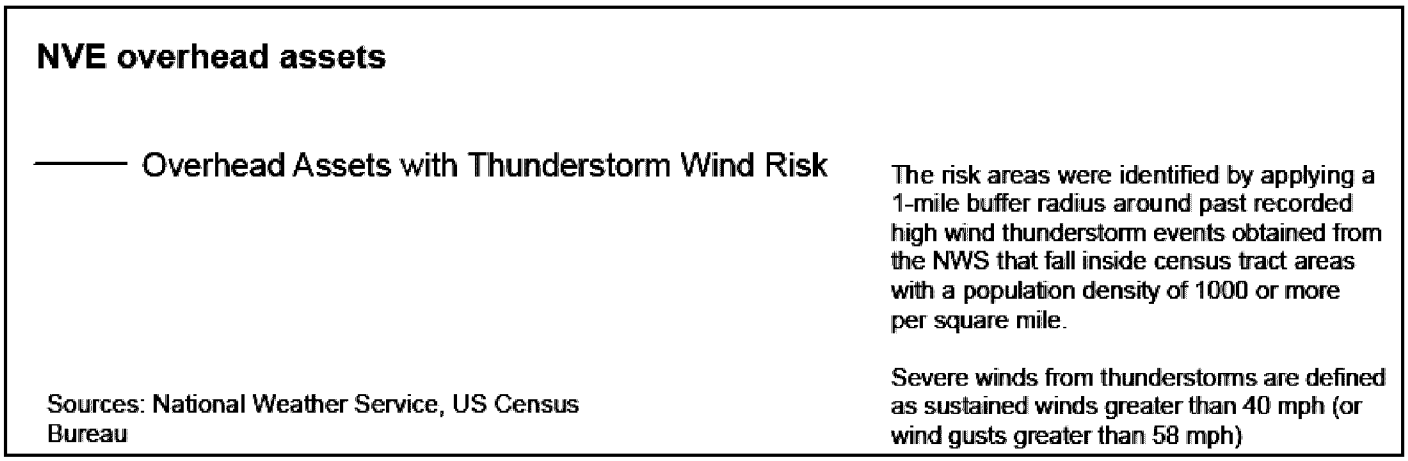


Figure 15. Thunderstorm Wind Risk

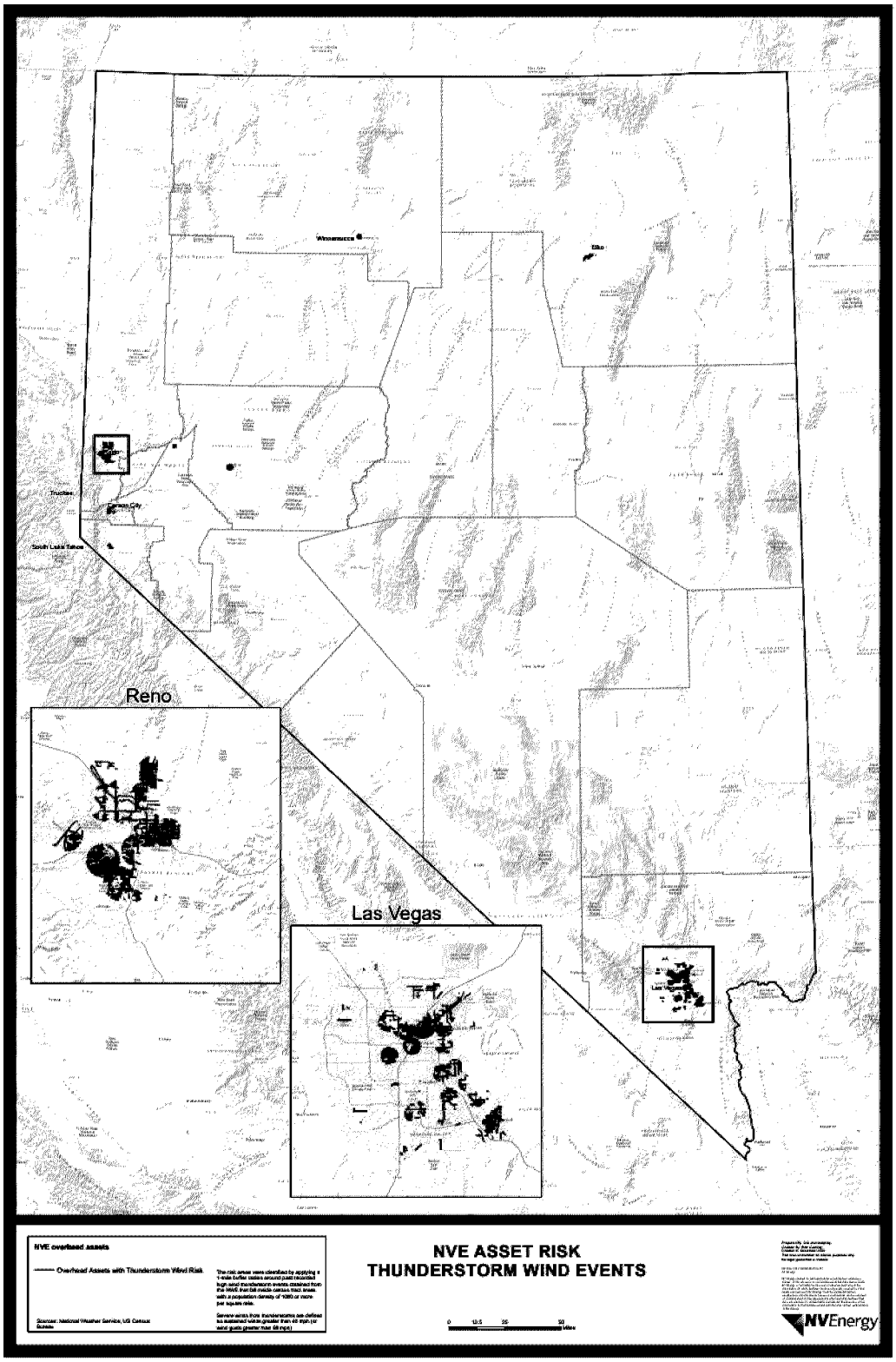


Figure 16. Thunderstorm Wind Risk Surrounding Reno

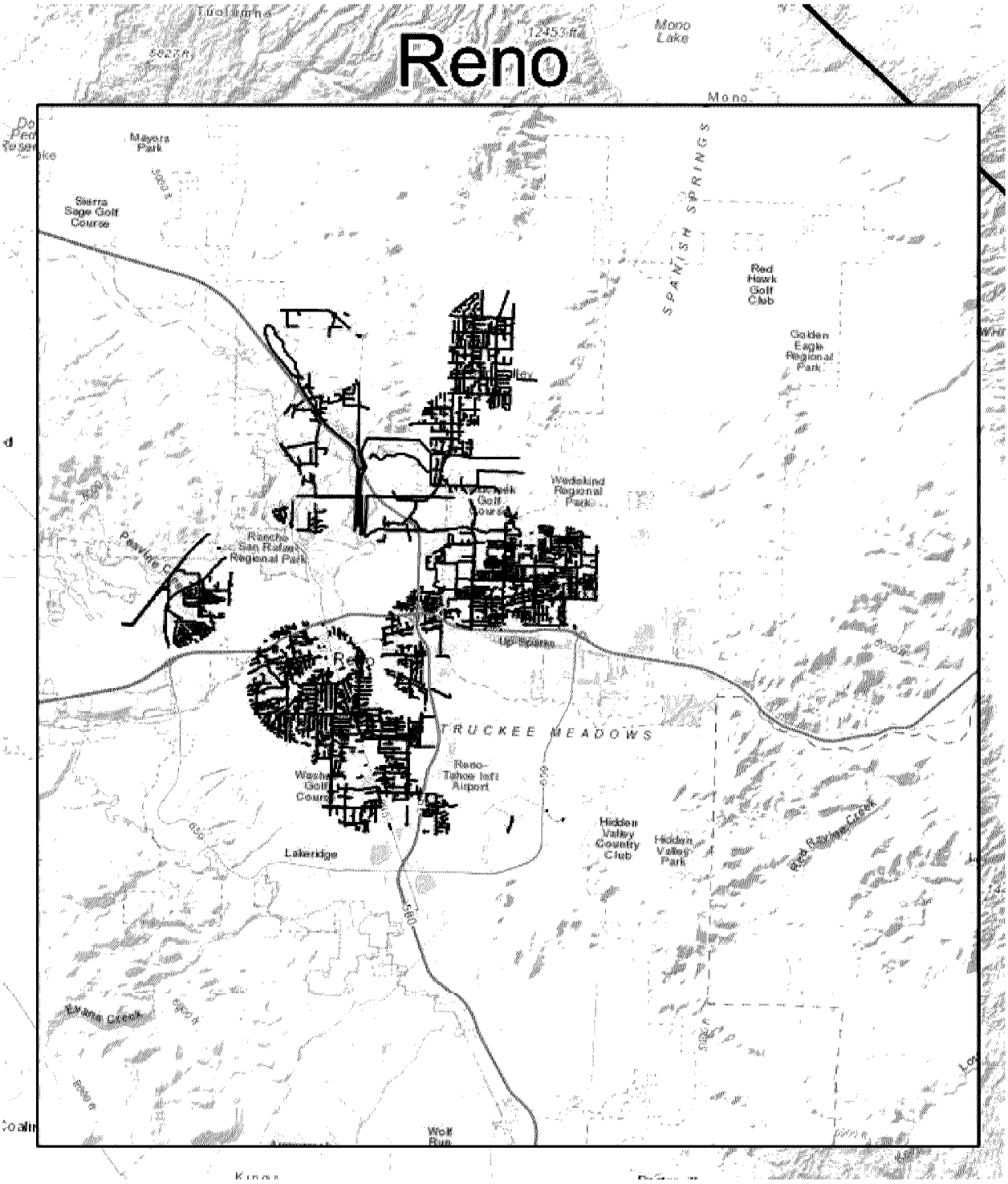
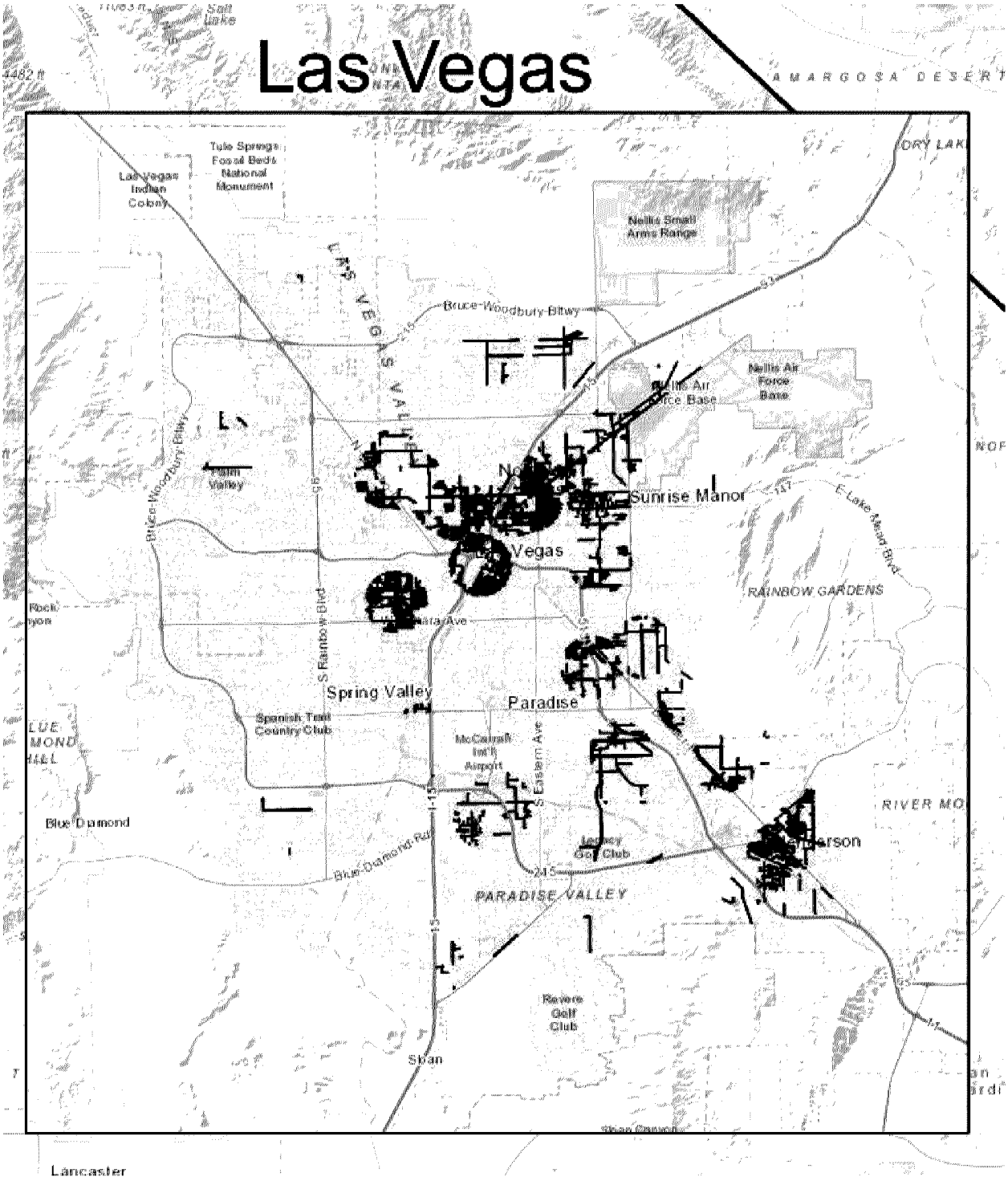


Figure 17. Thunderstorm Wind Risk Surrounding Las Vegas



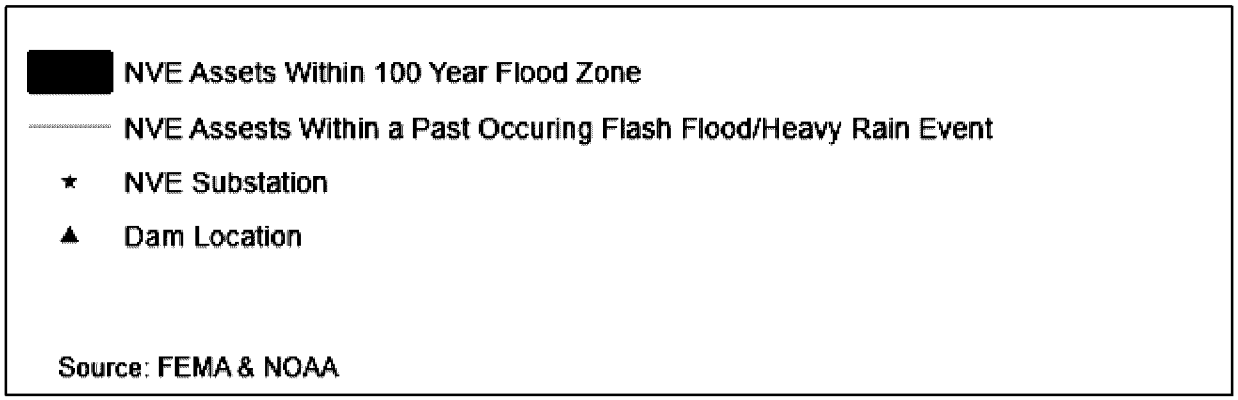
1.2.5. MONSOON AND FLOODING EVENTS

Areas of increased risk from natural catastrophes include Special Flood Hazard Areas ("SFHAs") as defined by FEMA.[15] SFHAs are identified as any area that has a one percent or greater chance of inundation in any given year. More commonly, these SFHAs are referred to as base flood or 100-year flood zones. Hazard areas typically lie adjacent to natural and manmade waterways (including lakes, rivers, and canals) with elevated risk of seasonal flooding due to prolonged rain patterns or snowpack melt. Seasonal flooding risk is more significant in the areas adjacent to the Sierra Nevada mountain range, including the Reno, Carson City, and Lake Tahoe areas. Parts of the Las Vegas metropolitan area also lie in seasonal 100-year flood zones, but flash flooding events are the primary concern in the Las Vegas Valley due to varying cycles of average annual precipitation. Typical heaviest precipitation in southern NV is driven by summer monsoons, while winter atmospheric river storms bring the heaviest precipitation for northern NV.

Flash floods are defined as any flooding event that occurs within six hours of a heavy rainfall event.[16] Damaging flash floods may occur both within and outside 100- and 500-year flood zones as the direct result of a downpour, often caused by severe thunderstorms. These floods often occur in urban areas, where physical infrastructure prevents the seeping of rainwater into the soil. Flash flooding is also tied to mudslides, debris flows, and landslides, especially in recently burned areas from wildfires. Flash floods may also occur due to dam, levee, or drainage system failure. While this can occur at random due to standard wear over time, flash floods from infrastructure failure are often caused by other disasters like earthquakes and landslides. Historic flash flood events reported to NOAA are concentrated around population centers, including Carson City, Reno, and Las Vegas. Las Vegas has a history of flash flood events caused by summer monsoons. Hundreds of miles of storm drains, canals, and levees have been constructed in the Las Vegas metropolitan area to reduce the risk of both flash and seasonal flooding. Monsoon events, combined flooding, and high wind events have resulted in catastrophic outages, especially in the southern part of NV Energy's territory.

Substations and other low-lying assets are at the greatest risk of impact from all types of flooding. Water caused by conventional seasonal flooding may penetrate substation facilities and cause interaction with exposed components. Flash flooding events, particularly those caused by infrastructure failure, may in contrast affect all types of neighboring assets (including susceptible poles) due to the force of rushing water.

Figure 18. Monsoon and Flood Risk Legend



[15] FEMA. "Flood Zones." https://www.fema.gov/flood-zones. https://www.fema.gov/flood-zones. March 18, 2019.

[16] NWS, NOAA, U.S. Department of Commerce. "Flash Flooding Definition." https://www.weather.gov/phi/FlashFloodingDefinition.https://www.weather.gov/phi/FlashFloodingDefinition.

Figure 19. Flooding and Monsoon Risk Surrounding the Lake Tahoe Basin

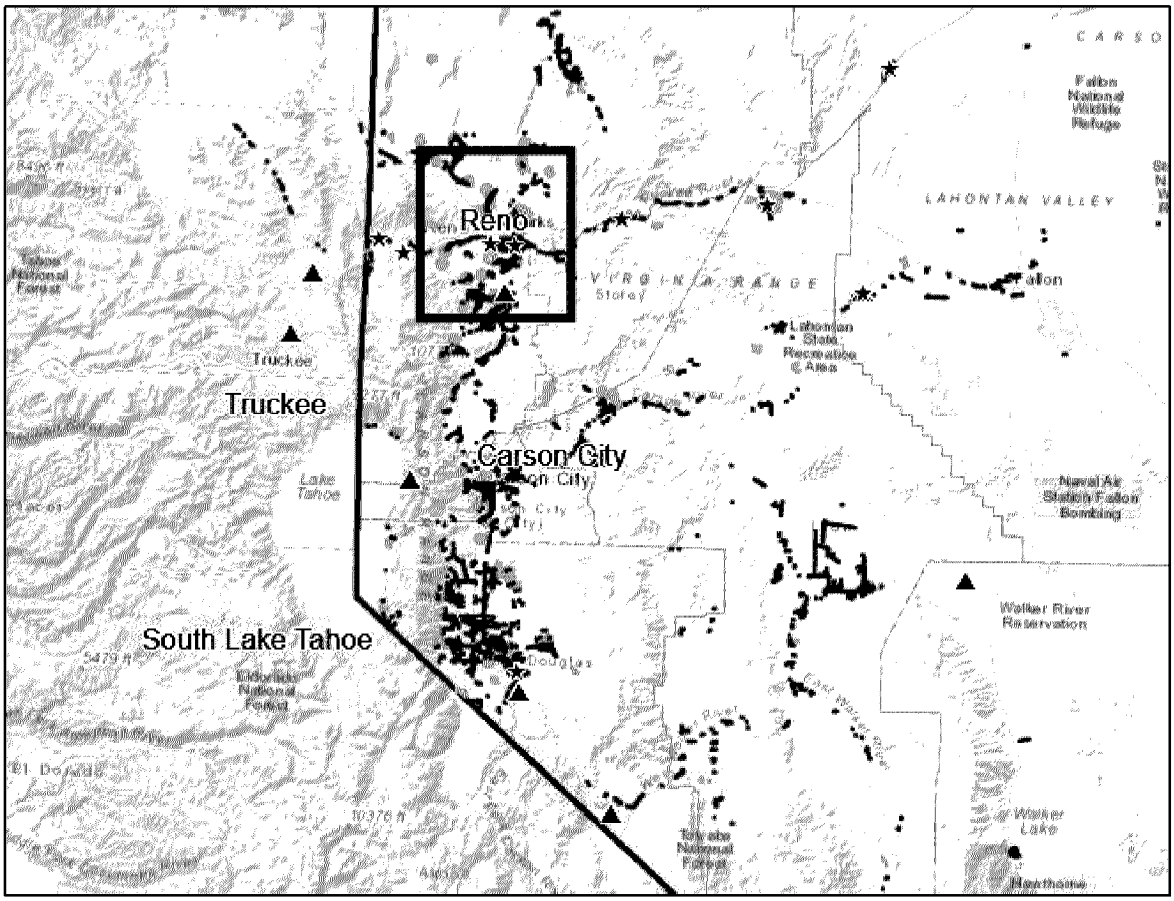


Figure 20. Flooding and Monsoon Risk in the Northeast

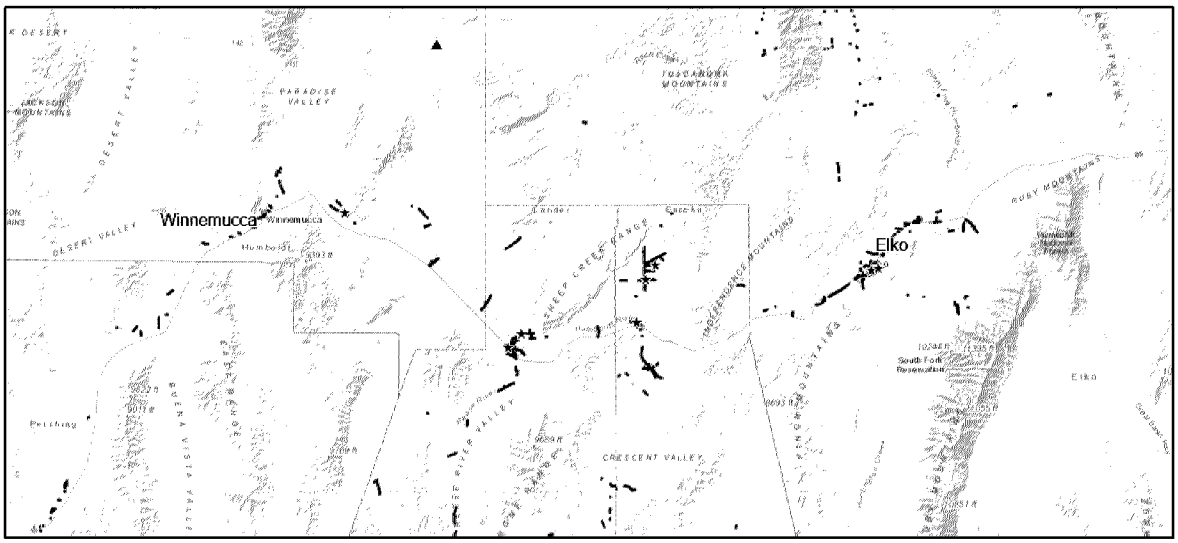
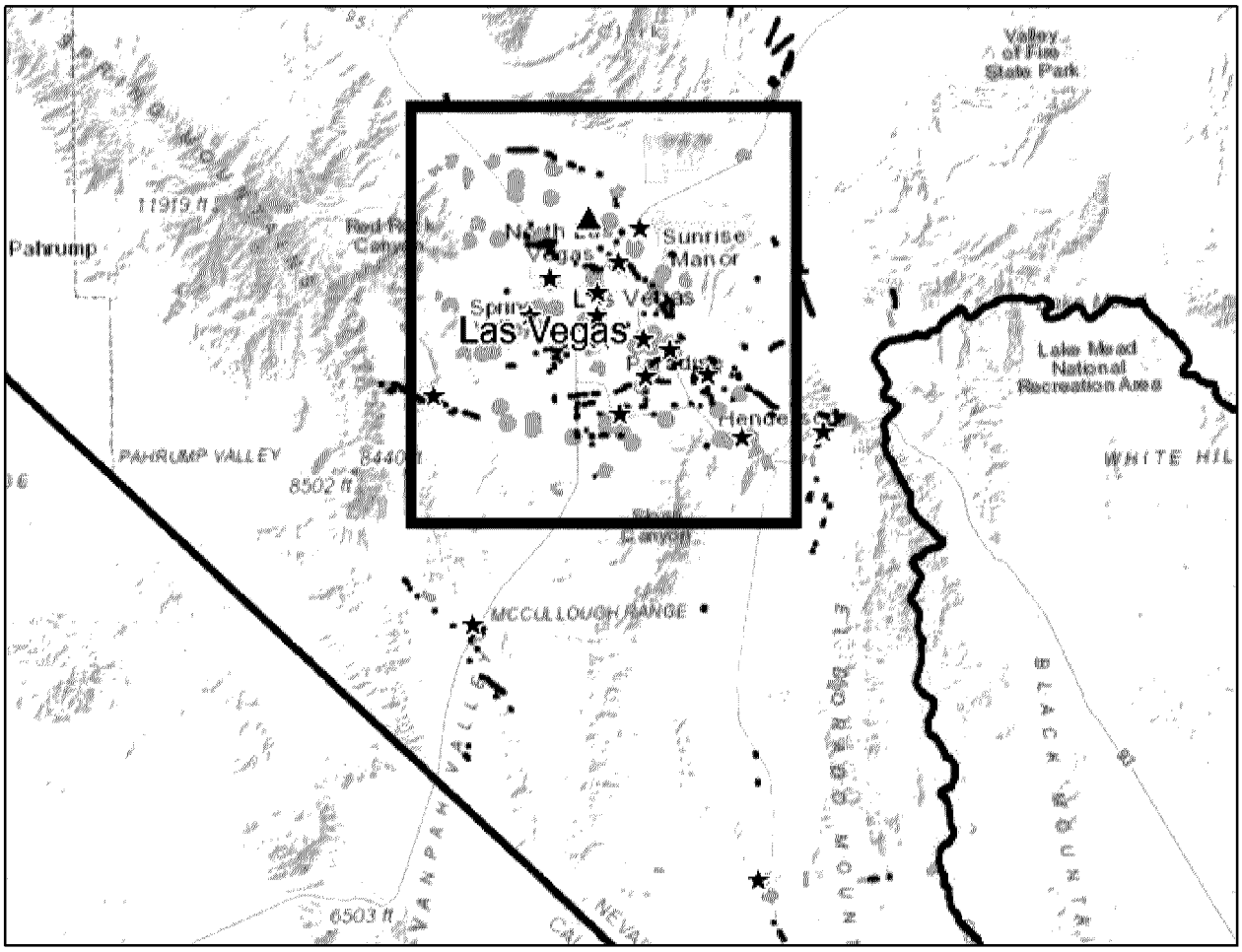


Figure 21. Flooding and Monsoon Risk in the South



1.2.6. HEAT WAVES AND DROUGHT

As severe weather events continue to increase, the impacts of heat waves have continued to threaten reliable electricity supply to customers. Heat waves and extreme drought are common in the Companies' service territory and prolonged heat events can disrupt reliable power supply to customers when supplies or delivery routes are impacted. Wear and physical degradation from heat events will be integrated in the conditional awareness to prioritize natural disaster threat remediation activities for future filings. Heat and drought conditions can exacerbate other natural disaster risk conditions, as noted by the EWG (e.g., wildfire risk). Droughts are another persisting condition potentially impacting hydroelectric generation and other water-intensive generating stations. As higher temperatures result in resource adequacy and power delivery issues in the Companies' service territory, mitigation measures would be harmonized with the Companies' Integrated Resource Plan and other regulatory filings.

Figure 22. Drought Risk Across the U.S.

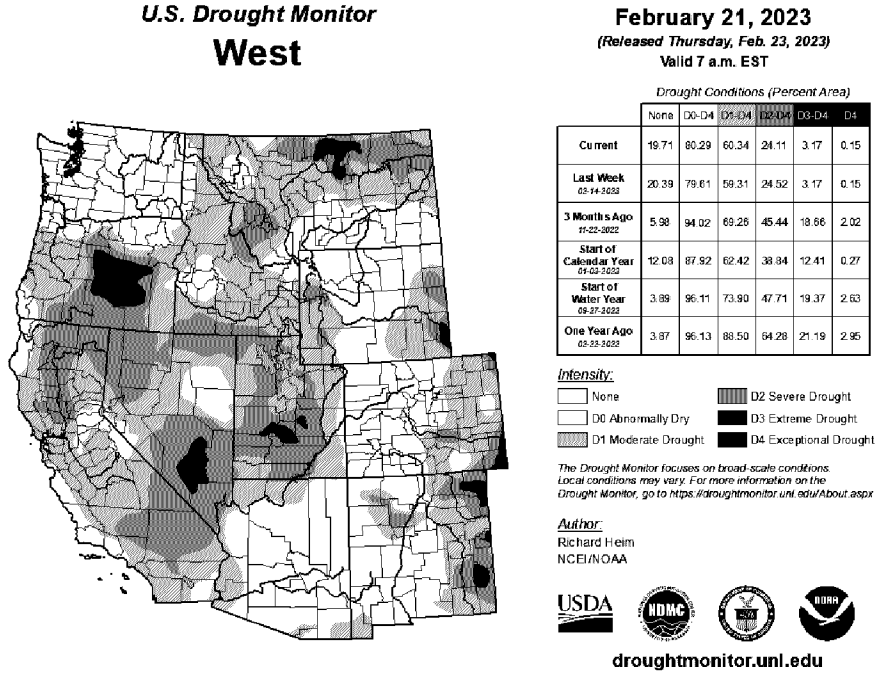
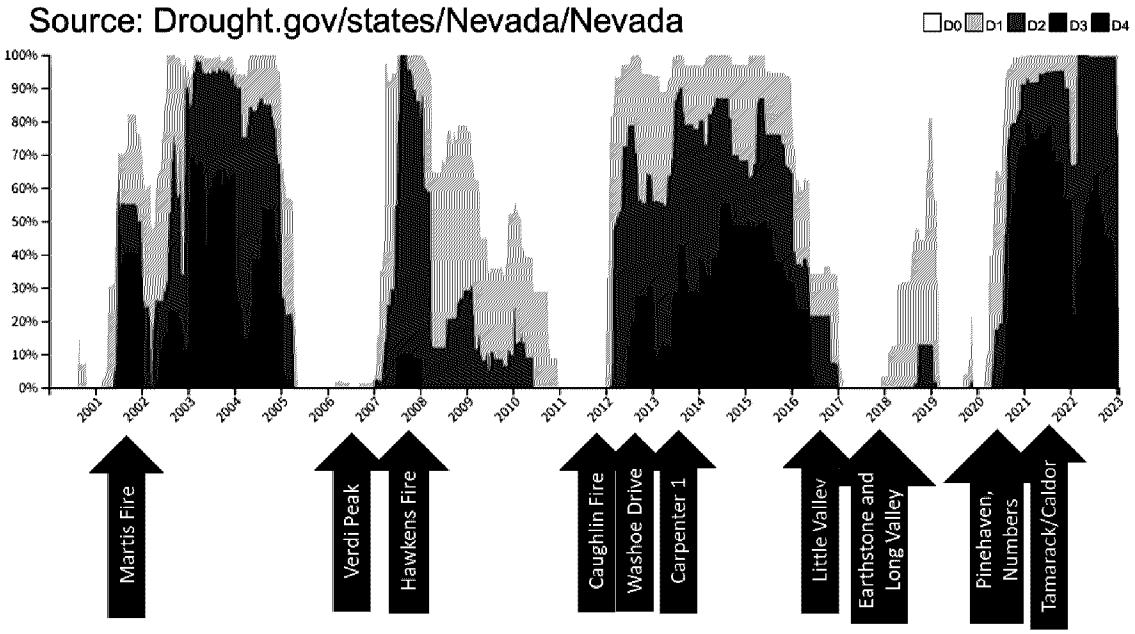


Figure 23. Drought Trends Chronology

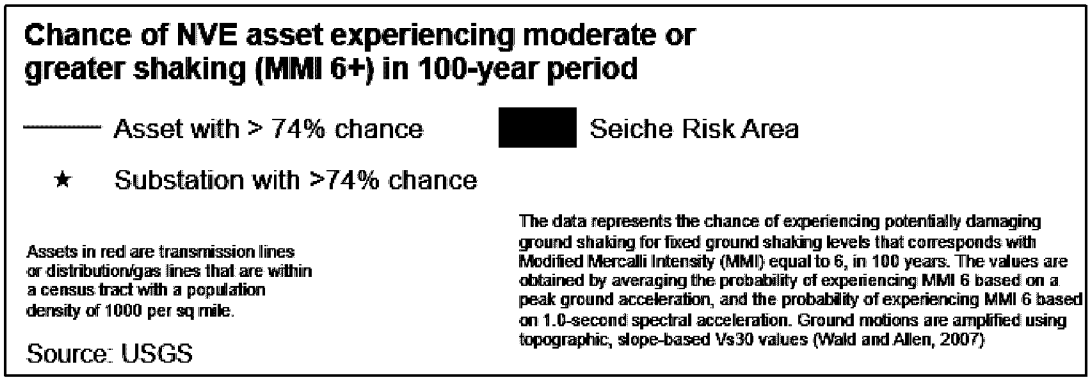


1.2.7. EARTHQUAKES

The USGS identifies active faults and earthquake probability based on historical events and potential energy release. The USGS and the Nevada Bureau of Mines identified ten active faults with high potential earthquake magnitude across the state, though major events are infrequent.[17] As seen most recently in Northern California, the aftermath of a major earthquake presents a great risk consequence when lateral or vertical shaking can dislodge footings, sway poles and lines, and impact foundational pads in substations. For this risk assessment, the threshold for a damaging earthquake was set at magnitude 6.0 with a moderate to severe Mercalli intensity.

Seiche, also known as a lake tsunami, is primarily caused by the energy release potential of the active faults, typically near the Lake Tahoe Basin ("Basin"). There is a lower seiche risk impact for Lake Las Vegas and Lake Mead in the southern portion of the State. The Basin has historically experienced high-magnitude earthquakes (magnitude 6.0+). Historical records illustrate tsunamis forming as high as 30 feet in the Basin, creating the potential for high, forceful water flow into the transmission and adjacent substation assets bordering California.

Figure 24. Earthquake Risk Legend



[17] UNR, NV Bureau of Mines & Geology. "2013 Nevada Enhanced Hazard Mitigation Plan." http://www.nbmg.unr.edu/nhmpc/State_of_Nevada_Enhanced_Multihazard_Mitigation_Plan/NV_plan_2013/Section_3_Hazards_Risk_Assessment_&_Profiles_9_Sept_2013.pdf. Pg.3-28. September 9, 2013.

Figure 25. Earthquake Risk Surrounding the Tahoe Basin

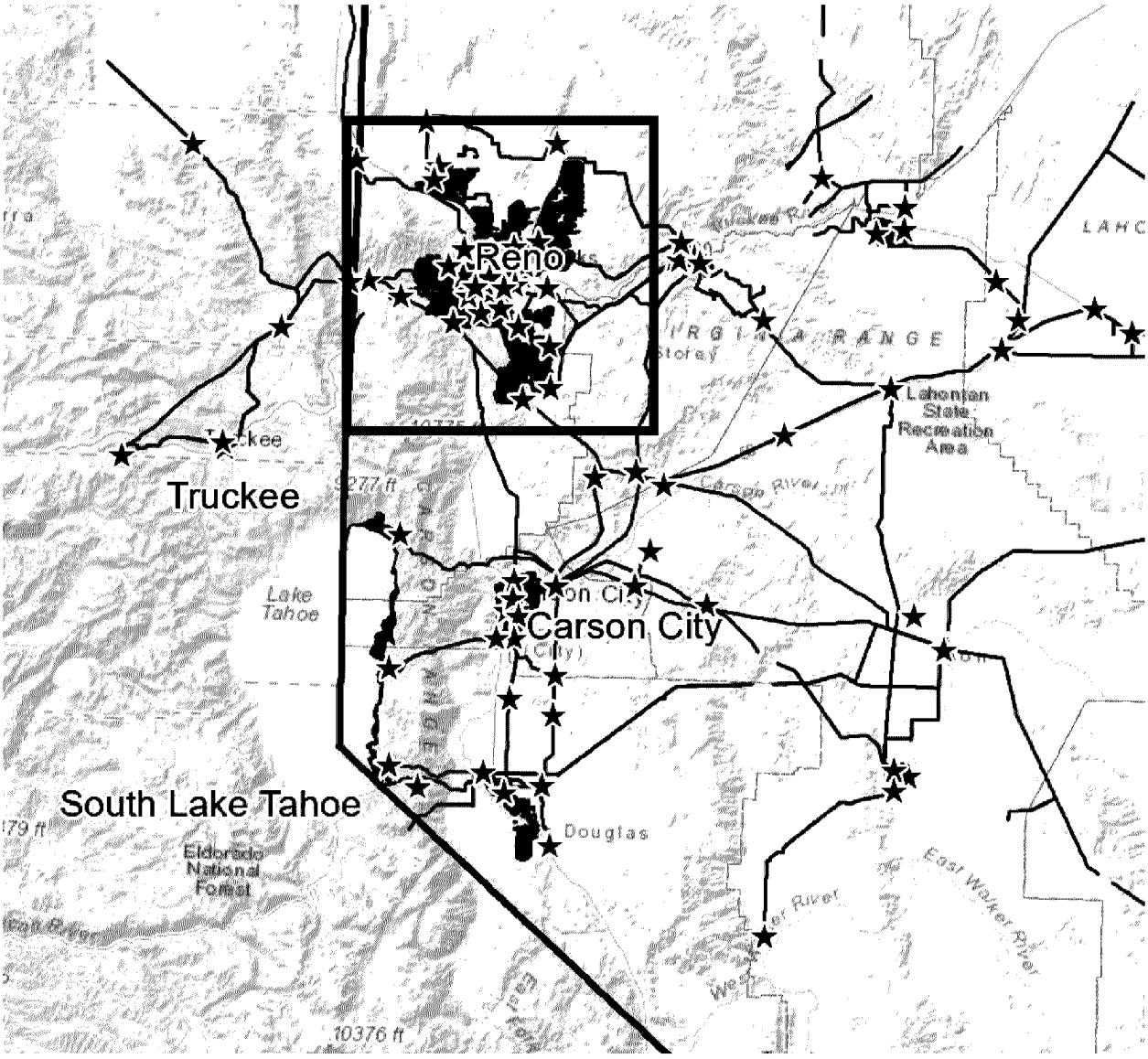
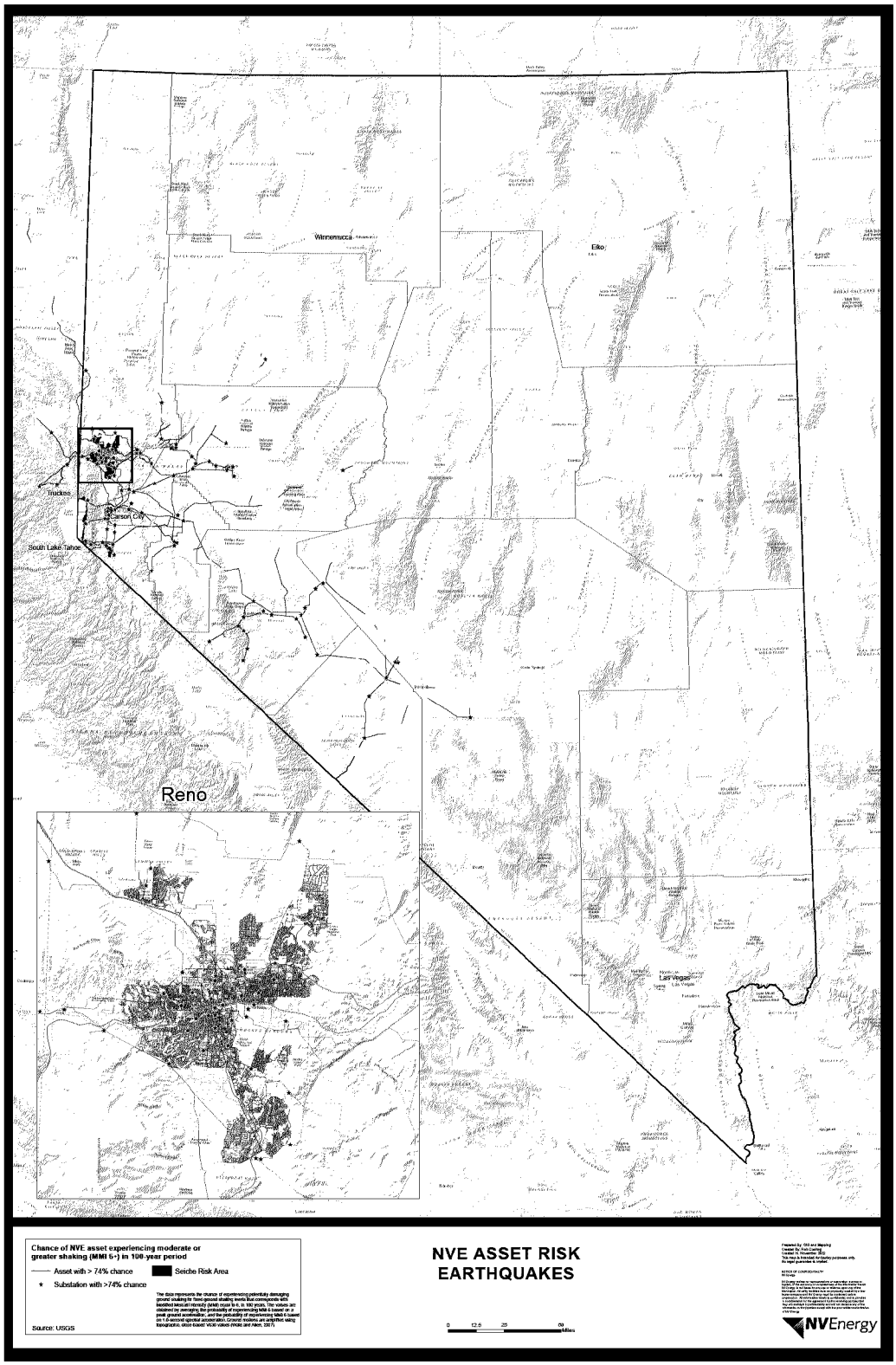


Figure 26. Earthquake Risk Statewide



1.2.8. LANDSLIDES AND AVALANCHES

Per the USGS, the movement of a mass of rocks, debris, or earth down a slope is referred to as a landslide.[18] This event occurs when forces acting on a slope, including gravity, exceed the strength of the materials forming the slope. Both debris flows (mudslides) and falling rocks or soil are encompassed by this definition. Landslides are nearly always caused by the interaction of gravity with one or more other external factors and most often occur when a slope is already primed for movement. External influences may include heavy rainfall, snowmelt, erosion from water, or wind, earthquakes, and human disturbance. Landslide hazards exist throughout the State of Nevada but are largely concentrated in mountainous regions that are exposed more routinely to external factors like snow, rain, and earthquakes. Service territory and assets in California and in hilly or mountainous areas surrounding Carson City and Reno are at greatest risk. Minimal risk is identified for assets in the Las Vegas Valley or surrounding areas, with the exception of Mt. Charleston and the mountains to the south of Sunrise Manor and Henderson. Despite differences in substrate, many of the same triggers and effects of landslides are also shared by avalanches.

An avalanche occurs when a layer of snow collapses and cascades down a slope. Factors that lead to an increased avalanche hazard include steep slopes, heavy snow cover, weak snow layers, and the prevalence of triggers.[19] Avalanches can be triggered by one or more of a variety of vibrations caused by human activity (heavy machinery, railways, and snow vehicles), sonic booms, unusually heavy snow, or seismic activity such as earthquakes. Avalanche risk is limited almost exclusively to the Sierra Nevada mountain range, including Tahoe, Truckee, Reno, and Carson City due to the concentration of annual snowfall in these areas, and in Mt. Charleston and assets surrounding Henderson.

Both landslides and avalanches pose a significant threat to all nearby assets in affected areas. Transmission lines, distribution lines, substations, and other assets (e.g., telecommunications equipment) may be knocked over or buried by either type of event. Debris collected by a landslide or avalanche may also impact the Companies' infrastructure or become entangled with lines and exposed equipment.

[18] USGS. "What is a landslide and what causes one?" https://www.usgs.gov/faqs/what-a-landslide-and-what-causes-one?qt-news_science_products=0#qt-news_science_products.

[19] Government of Canada. "Avalanches." https://www.getprepared.gc.ca/cnt/hzd/vlchs-en.aspx.https://www.getprepared.gc.ca/cnt/hzd/vlchs-en.aspx.

Figure 27. Landslide and Avalanche Risk Legend

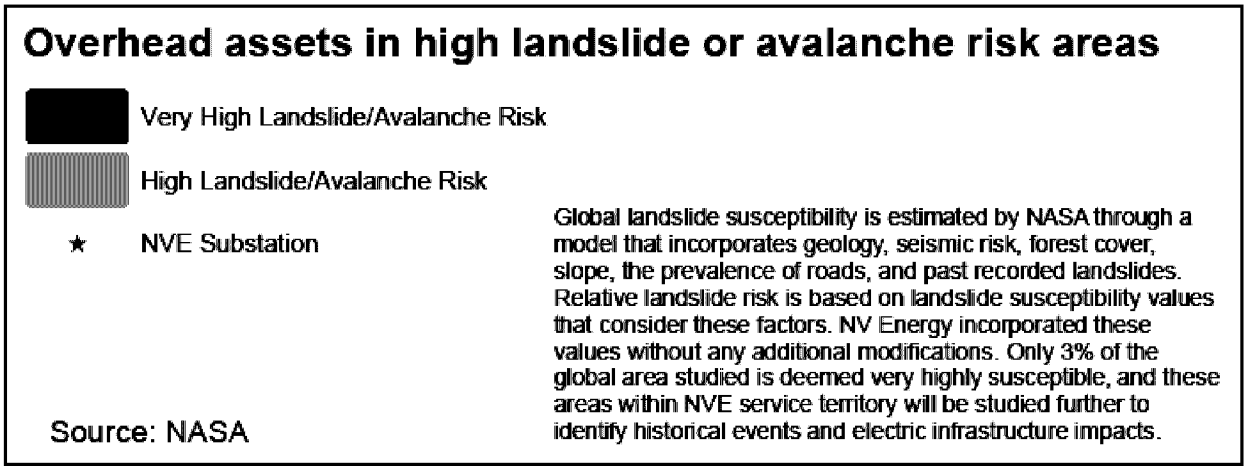


Figure 28. Landslide and Avalanche Risk in the Northeast

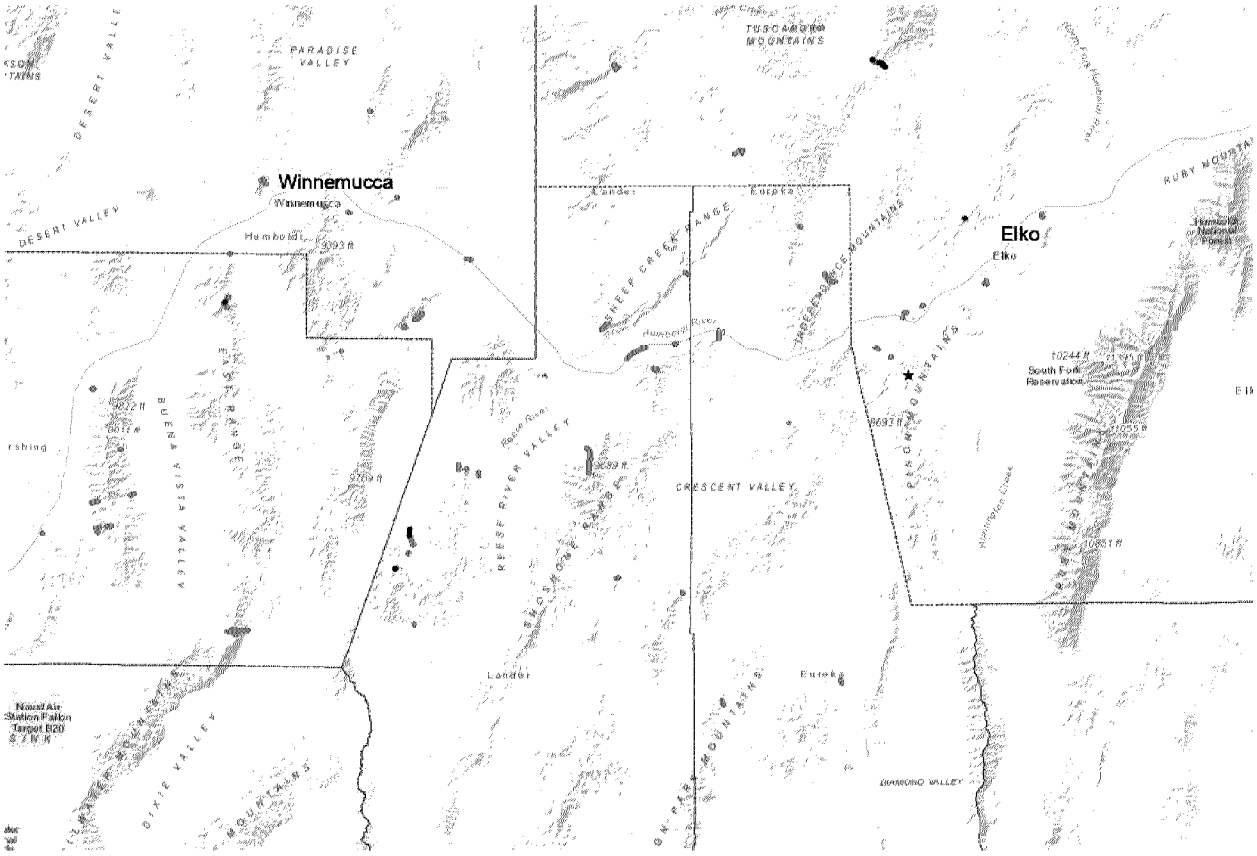


Figure 29. Landslide and Avalanche Risk in the Reno / Carson City Area

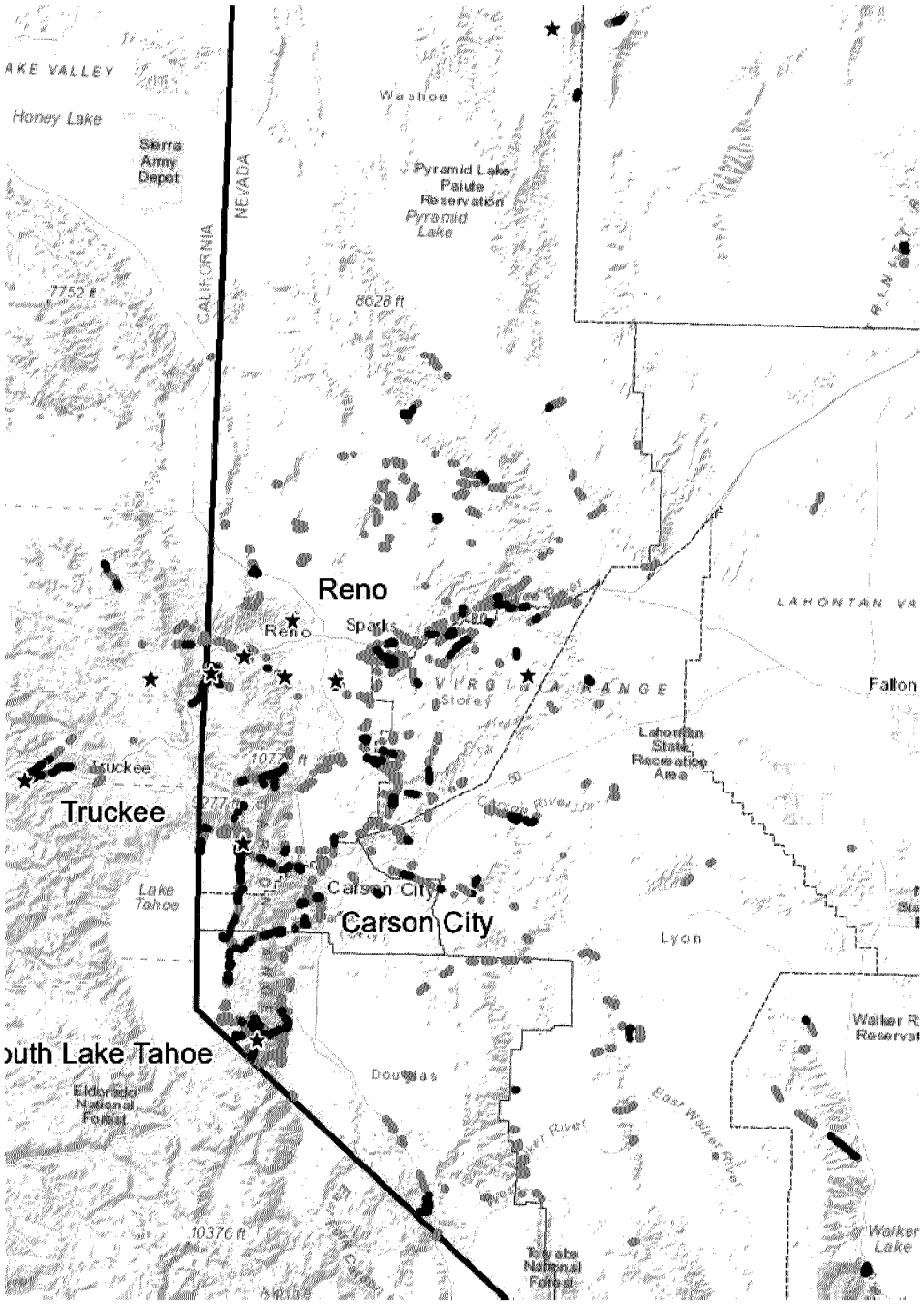
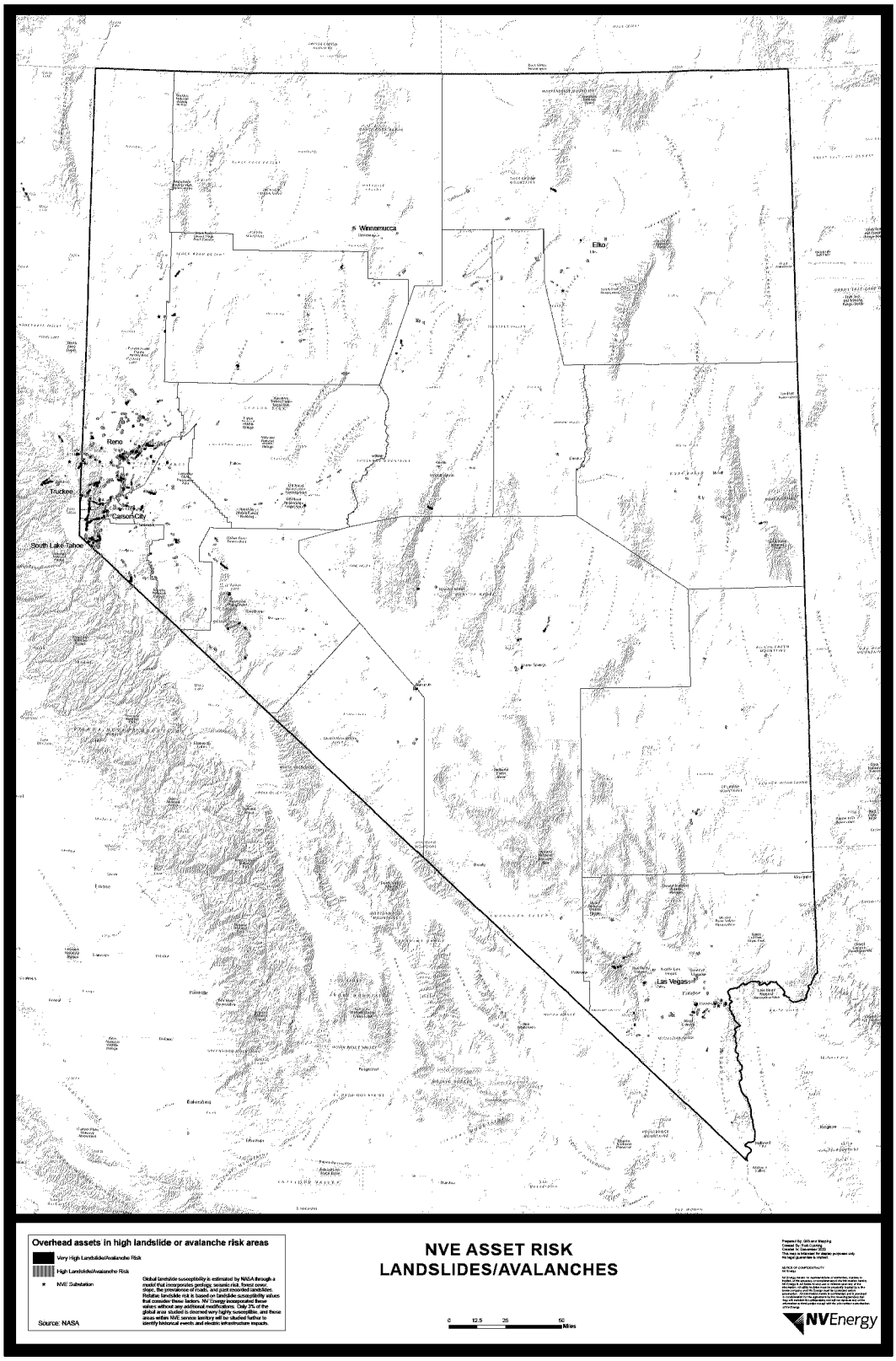


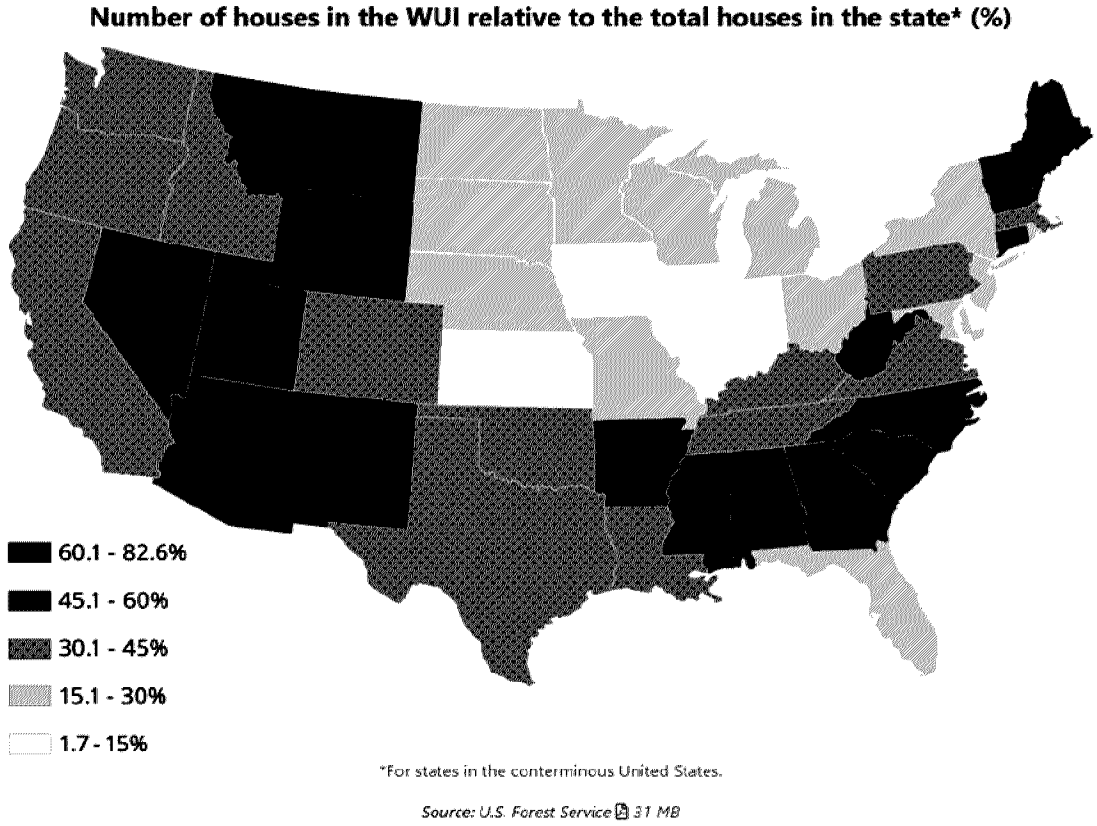
Figure 30. Landslide and Avalanche Risk



1.3. COMPLYING WITH THE WUI CODE

Compared with other states, Nevada contains one of the highest population centers located in the WUI as shown in Figure 31 below. Procedures, protocols and measures in this Plan identify where there is electric infrastructure in the WUI areas and have classified them as Tier 3, Tier 2, Tier 1E, and Tier 1. The WUI Code requirements take effect in the wildland risk rating of moderate and above. Using the NDF Wildfire Risk Rating map, Tier 3, Tier 2, Tier 1E, and Tier 1 are calibrated to the risk ratings of extreme to moderate. NV Energy is collaborating with the EWG and Authorities Having Jurisdiction ("AHJs") to comply with applicable requirements of the International Wildland Urban Interface Code ("IWUIC") to consider vegetation and infrastructure management in the WUI areas.

Figure 31. Number of Homes in WUI Relative to Total Houses

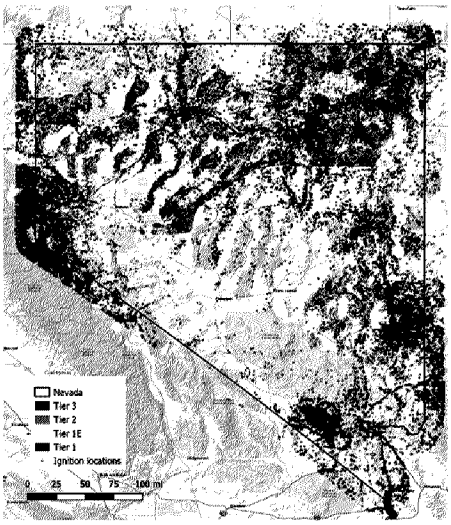


1.4. UPDATED HEIGHTENED THREAT AREAS FOR THE TRIENNIAL PLAN UPDATE

The Companies have re-evaluated natural disaster risk drivers as part of the Triennial Plan, as requested by the EWG in 2020. The Companies engaged REAX Engineering to analyze the areas across the State for heightened wildfire threat to recommended updates to the Tier areas in the NDPP. REAX also analyzed the best way to align the NDPP Heightened Wildfire Risk Tiers with existing wildfire risk maps. Some of the factors analyzed by REAX Engineering and ratified with the EWG included fire history and fire ignitions. Values at Risk includes communities, infrastructure, watersheds, habitat, grazing, and standing timber. Information from REAX Engineering, including state and federal risk, was used to determine rating maps

of heightened wildfire risk. Proposed adjustments to the NDPP Tier areas were reviewed with the EWG with no objections identified. The EWG recommended that the Companies continue to review and update the HTAs as the conditions change from year to year. The full REAX reports for Wildfire HTAs are included in Appendix B, reflecting Tier 3 analysis for VC Highlands and the replacement of Tier 1 to for the former WUI designation. Additional information about Nevada's Fire Risk policies and programs is available at NV Resource & Fire Portal - Home (nevadaresourcesandwildfireinfo.com).

Figure 32. Nevada's Historic Ignition Locations Informs Risk Tiers



Historic ignition locations relative to current and proposed fire risk tiers

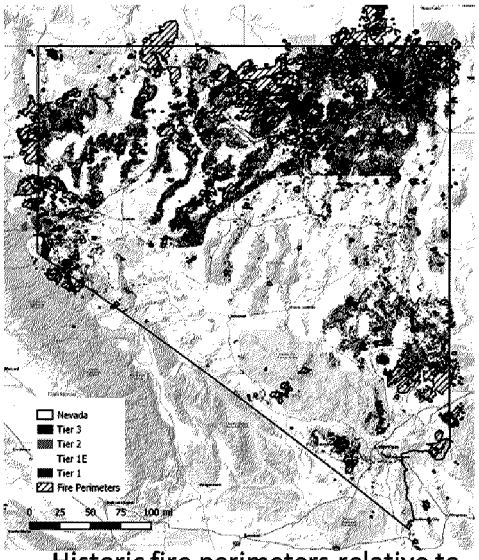
Summary of fire history and structure counts within 120 m buffer surrounding NV Energy's current and proposed fire risk tiers

Tier	Ignitions	Structures
1	29,000	150,000
1E	900	26,000
2	500	15,000
3	200	7,000

Figure 33. Nevada's Historic Fire Perimeters Informs Risk Tiers

Summary of fire history and structure counts within 120 m buffer surrounding NV Energy's current and proposed fire risk tiers

Tier	Ignitions	Structures
1	29,000	150,000
1E	900	26,000
2	500	15,000
3	200	7,000

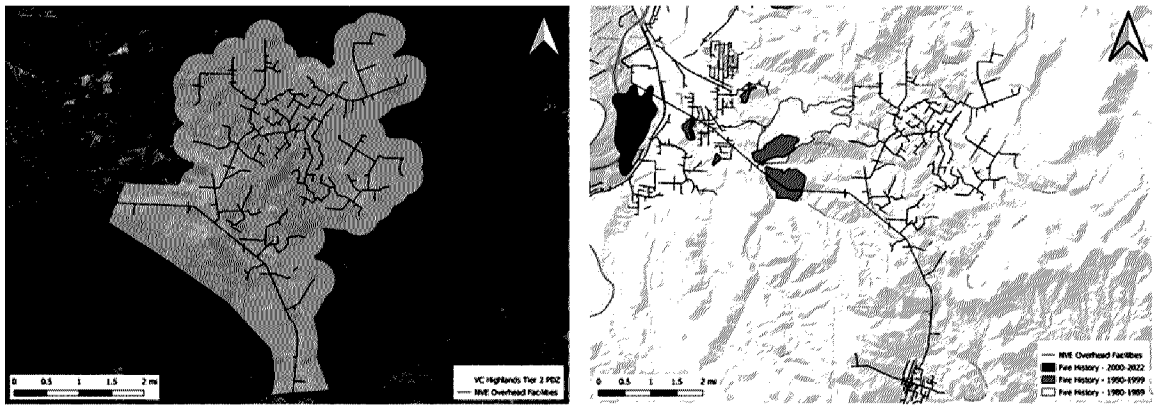


Historic fire perimeters relative to current and proposed fire risk tiers

1.4.1. UPDATED HEIGHTENED THREAT AREAS FOR TRIENNIAL PLAN UPDATE: TIER 3 VC HIGHLANDS

Based on risk modeling conducted by REAX, NV Energy proposes elevating the VC Highlands to the Tier 3 classification.[20] The conditions that exist within the VC Highlands Proactive De-energization Zone ("PDZ") present a serious risk to the community in the event of a wildfire, with the same risk rating features as other Tier 3 areas. The area is identified as an extreme wildfire risk in the NDF Wildfire Risk Rating map and the USFS Wildfire Risk to Communities Map. Fire behavior, as modeled under winds possible during a frontal passage, indicates rapid rates of spread with passive flame lengths that would present suppression and control challenges. These factors all contribute toward elevating the VC Highlands PDZ from Tier 2 to Tier 3.

Figure 34. VC Highlands Tier 3 Reclassification



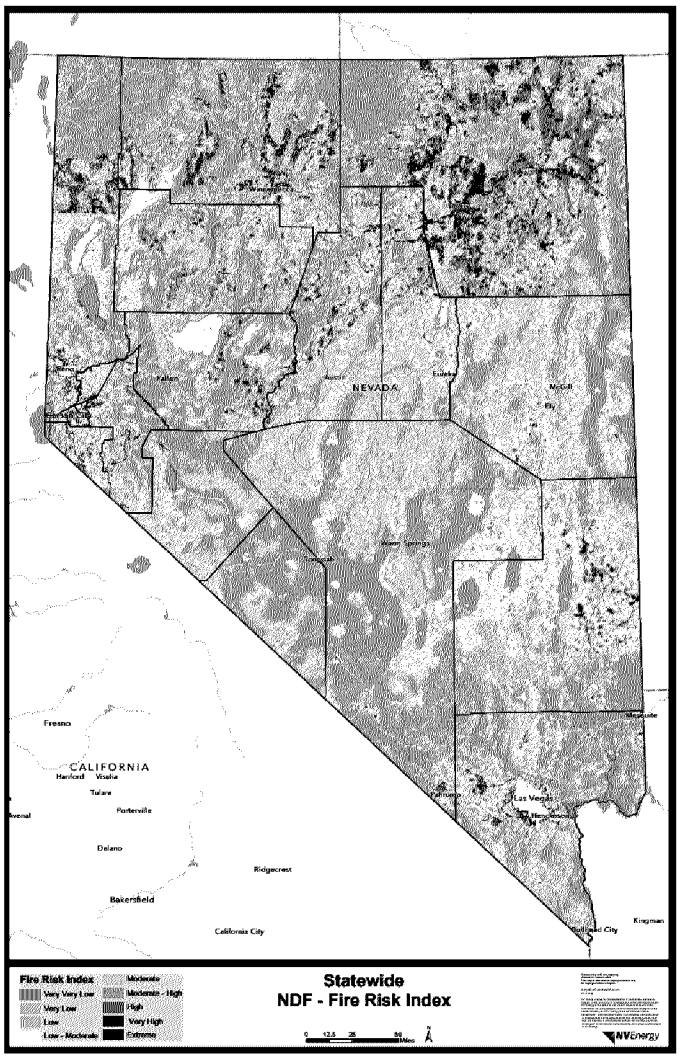
Source: REAX Engineering, 2023

1.4.2. UPDATED HEIGHTENED THREAT AREAS FOR COMPLIANCE WITH THE WUI

The Companies collaborated with the EWG that included NDF, BLM, USFS, local fire agencies, and Tribal Nations to align the wildfire HTA Tiers with the State of Nevada's Wildfire Risk Map. The State of Nevada and the fire agencies expressed the need for a consistent approach to assess and represent wildfire risk in maps statewide to develop effective fire mitigation strategies. The State had an independent contractor produce a Wildfire Risk rating map using the best available science encompassing values at risk that included granular building footprints, tree mortality, prevailing topography, watersheds, habitat, assets at risk, population density, fire spread modeling representative of high fire risk wind patterns, Risk to Potential Structures, Conditional Risk to Potential Structures, Burn Probability, Conditional Flame Length, Flame Length Exceedance Probability, Wildfire Hazard Potential, the USFS Fire Occurrence Database, and input from local/institutional knowledge from local fire agencies. For NV Energy, REAX Engineering independently analyzed areas across the State with heightened wildfire threat. The NDF Fire Risk Map index scale ranges from 0-9: 0. Urban, Agriculture, Barren or Water; 1. Very Very Low; 2. Very Low; 3. Low; 4. Low-Moderate; 5. Moderate; 6. Moderate-High; 7. High; 8. Very High; and 9. Extreme, shown in Figure 35. REAX analyzed the best way to align the fire risk Tiers with existing risk maps.

[20] The REAX fire threat analysis report appears in Appendix B.

Figure 35. NDF Risk Rating Map



The REAX recommendations were discussed with EWG with general agreement on the analysis and findings. Based on the findings of heightened risk, the Companies are replacing the original WUI area with a Tier 1 designation. Tier 1 is indicated in green on the NVE Tier maps. This new Tier 1 will cover approximately 2,162 line miles compared to the old WUI Tier that covered approximately 1,800-line miles. During this review, REAX analyzed 28 years from 1992-2020 of wildfire ignitions using the data from the USFS Fire Occurrence database. This showed that the Tier 1 area had the highest occurrences of ignitions, totaling 9,928 ignitions, compared to 2,248 in the other Tiers combined. REAX also compared the total amount of structures within each of the Tiers. Total amount of structures in Tier 1 is about 160,877 compared to the other Tiers combined of about 53,053. Within the State's Wildfire Risk Map the level of "moderate" fire risk and higher, the NVE Wildfire HTA Tier 3, Tier 2, Tier 1E and Tier 1 capture the State's Wildfire Risk rating from 5-9 on the scale as follows: 5. Moderate; 6. Moderate-High; 7. High; 8. Very High; and 9. Extreme. The new Tier 1 updates the previous WUI Tier to capture and define the heightened wildfire threat area. This aligns the NV Energy Wildfire HTA Tiers with the State's wildfire risk rating maps. Figures 36 through 40 show the updated Companies' HTA Wildfire Tiers.

Figure 36. Statewide NV Energy Tiers with Overhead Lines

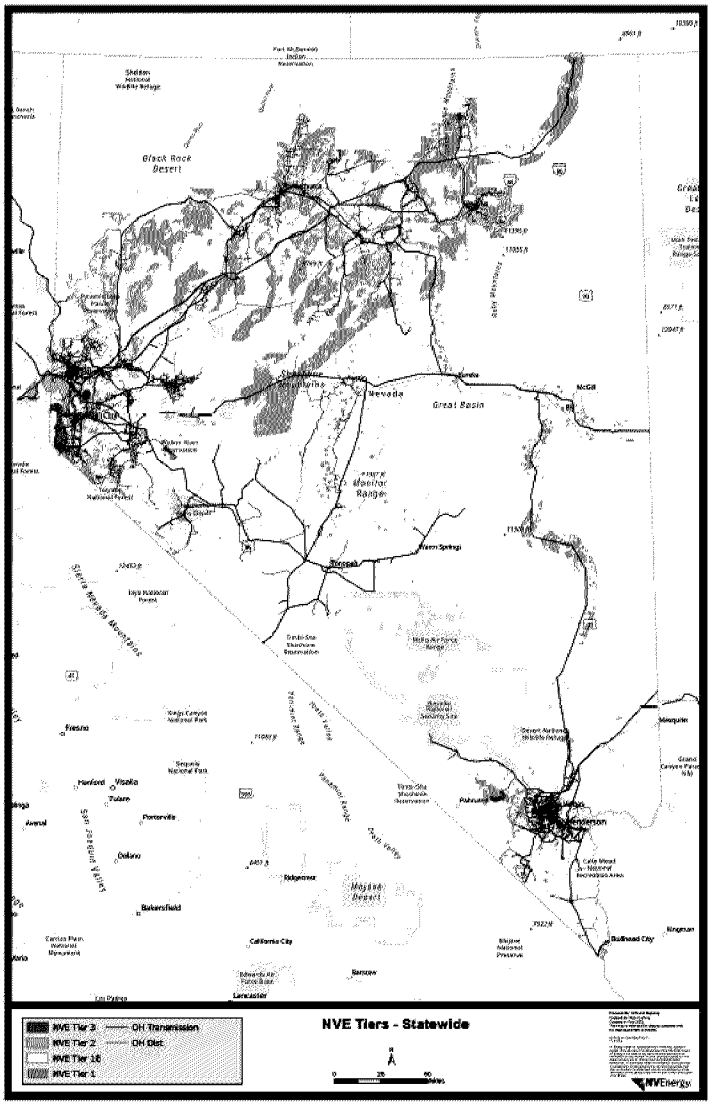


Figure 37. Reno/Tahoe NV Energy Tiers with Overhead Lines

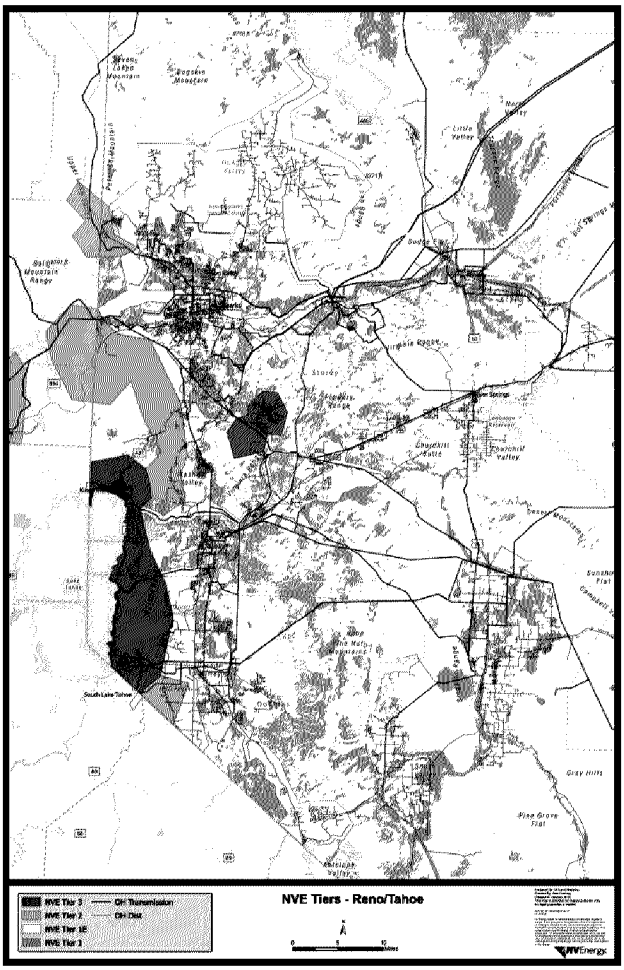


Figure 38. Las Vegas NV Energy Tiers with Overhead Lines

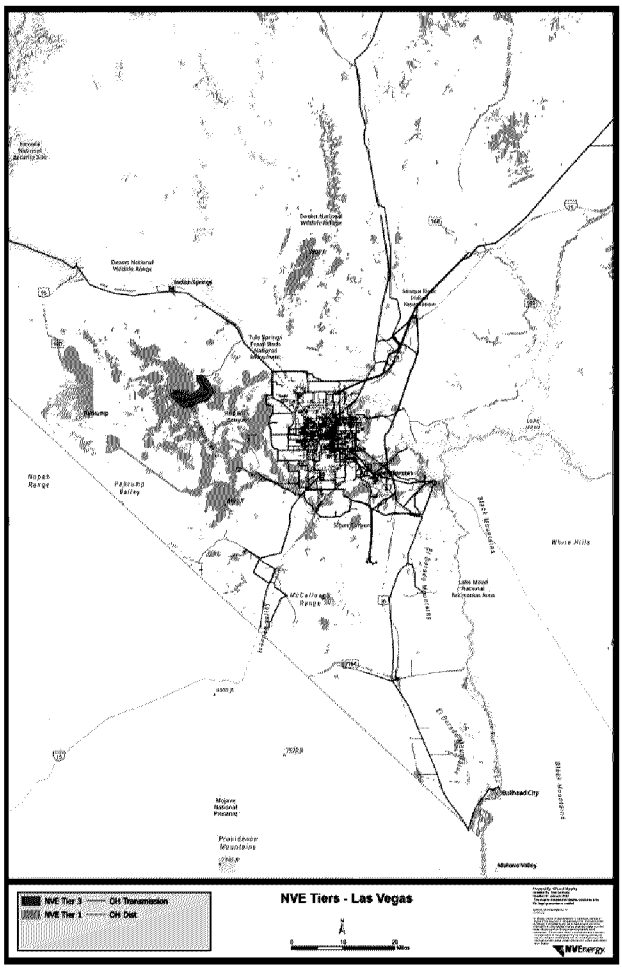


Figure 39. Winnemucca NV Energy Tiers with Overhead Lines

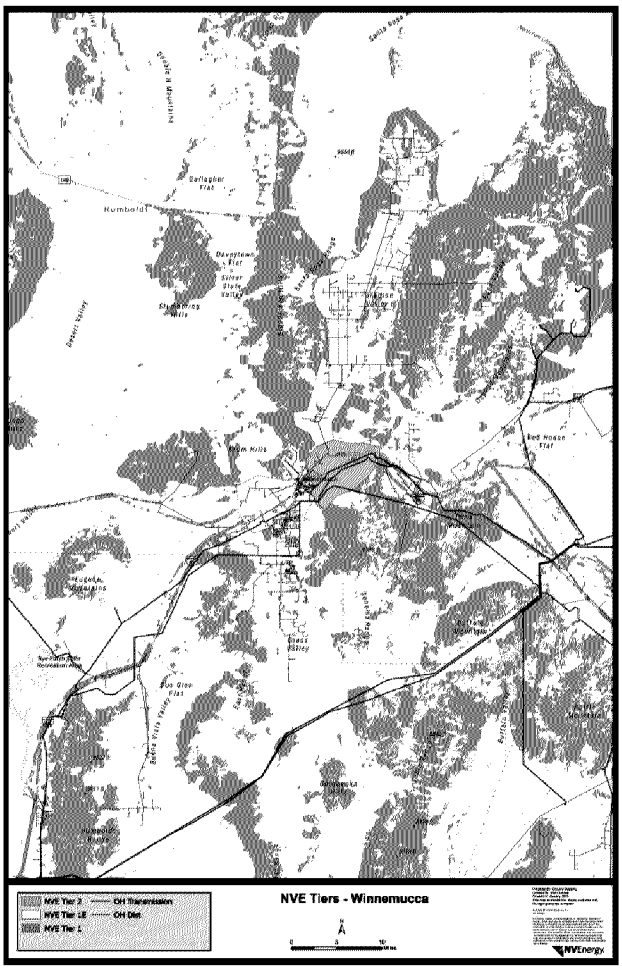
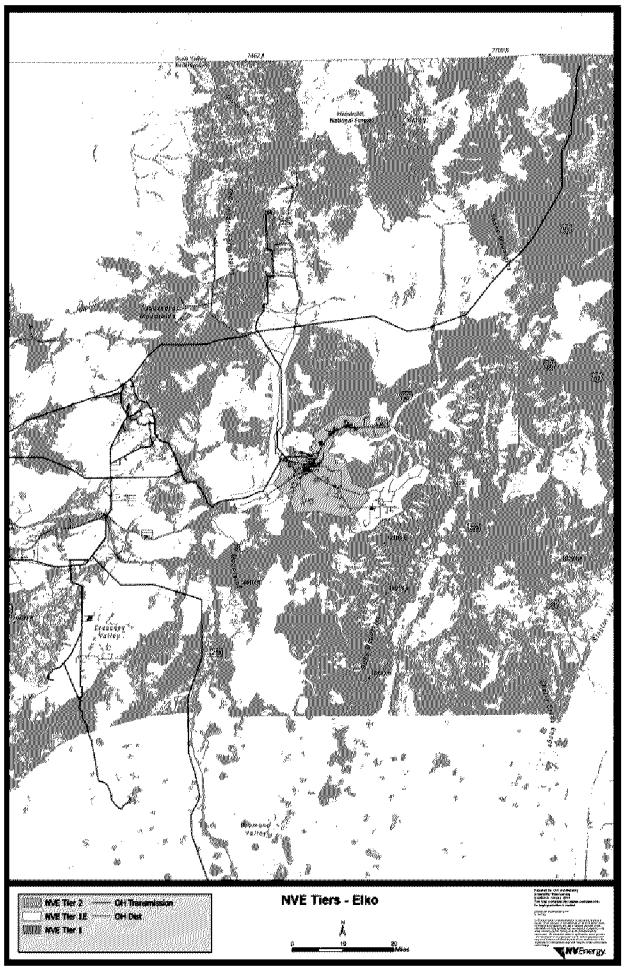


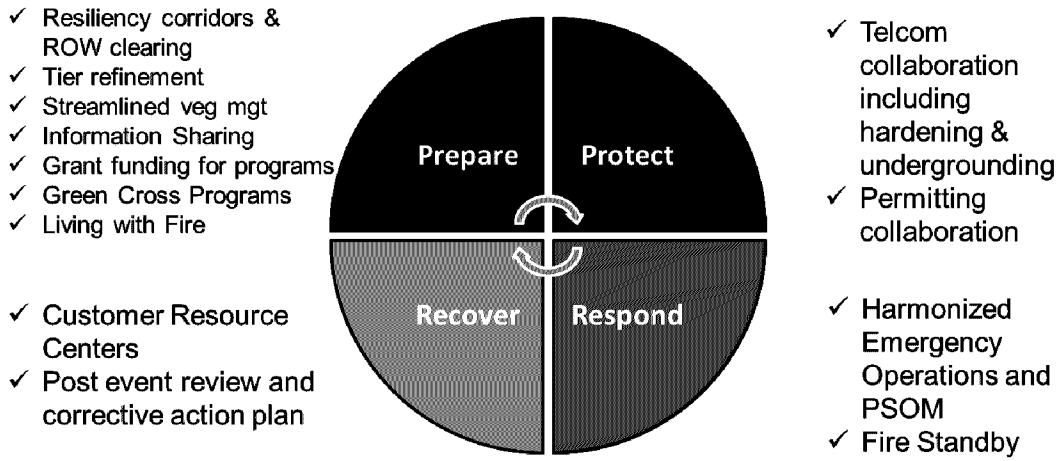
Figure 40. Elko NV Energy Tiers with Overhead Lines



2. NATURAL DISASTER PROTECTION STRATEGIES AND PROGRAMS

The following sections include the core aspects of NV Energy's NDPP. The Companies harmonize activities across a portfolio of time windows to balance preparedness and hardening in advance of events with response and recovery for potential threats. As is common industry practice, the Plan is focused along multiple activity fronts. Each aspect supports one or more time windows to assure a comprehensive approach to protecting public safety and lowering the risk that the Companies' infrastructure would create or elevate natural disaster risk.

Figure 41. Portfolio Approach to Risk Assessment



2.1. SITUATIONAL AWARENESS

A key aspect to understanding natural disaster risk is situational awareness. Complementary to situational awareness, is conditional awareness, which this NDPP addresses in later sections. This combination offers a picture of the natural disaster threats and the ability of infrastructure to withstand them. Awareness of what is happening on and around the power grid, especially in HTAs, is critical to good decision making.[21] Situational awareness provides insights into fire weather and other natural disasters. The Companies' programs include information sharing with expert agencies and other utilities along with obtaining accurate observations through weather stations and wildfire cameras. Field devices are increasingly equipped with data collection capabilities and AI. NV Energy continues to expand the range and capabilities of devices to improve knowledge and accuracy of conditions. The Companies have also entered into important data and information sharing arrangements with the EWG and other organizations. Improved situational information is a key feature of risk evaluation for real-time operations and forecasting to prepare for potential natural disaster impacts on the power grid.

2.1.1. TECHNOSYLVA ANALYSIS PLATFORM

The Companies are deploying Technosylva, a leading-edge technology in natural disaster risk analysis, which is used by many utilities in the West. In its current application, Technosylva provides a suite of wildfire risk analysis products directed at electric utility needs, including risk ratings for infrastructure, individual equipment, and line segments to identify HTAs, assess field conditions, support mitigation activities and analyze other infrastructure related risk for wildfires. The software integrates weather modeling and fire modeling with business operations. The Wildfire Analyst Enterprise fire spread prediction solutions, FireCast, FireSim and Wildfire Risk Reduction Model ("WRRM"), are tailored to robustly support the requirements of the NDPP. Technosylva integrates with other initiatives in this Plan, such as conditional awareness based on inspections and patrols and vegetation programs to harmonize risk reduction actions.

FireCast – FireCast leverages wide range weather modeling and Technosylva's fire spread prediction systems to derive risk ratings for NV Energy assets that can be updated daily. Risk forecasts are produced daily using an 80-hour horizon through hundreds of millions of fire simulations for each forecast. Baseline risks are calculated for each individual distribution and transmission asset, considering population and structures impacted for each simulation. These daily risk forecasts, including fire behavior, fire size potential and fire intensity help the Companies to:

1. Identify assets with the greatest probability of causing significant impacts should a fire occur;

2. Identify the assets with highest risk to be considered for proactive de-energization, Public Safety Outage Management ("PSOM") under extreme event conditions;

3. Predict risk reduction potential achieved through a PSOM event.

FireSim – When fires occur this predictive tool helps to quickly understand where the fire would go and what its impacts could be. FireSim provides an on-demand spread prediction containing detailed potential impacts. The impact analysis includes population density, structures, and infrastructure. This information is a key component for risk forecasting and mitigation response.

WRRM – The WRRM consolidates modeling results into an operational tool that allows electric utility engineers to quantify risk reduction that will be achieved by planned system hardening projects and programs. Leveraging the WRRM application, experts can assess and prioritize projects based on risk reduction potential.

[21] https://www.army.mil/article/238308/situational_awareness_make_safe_choices

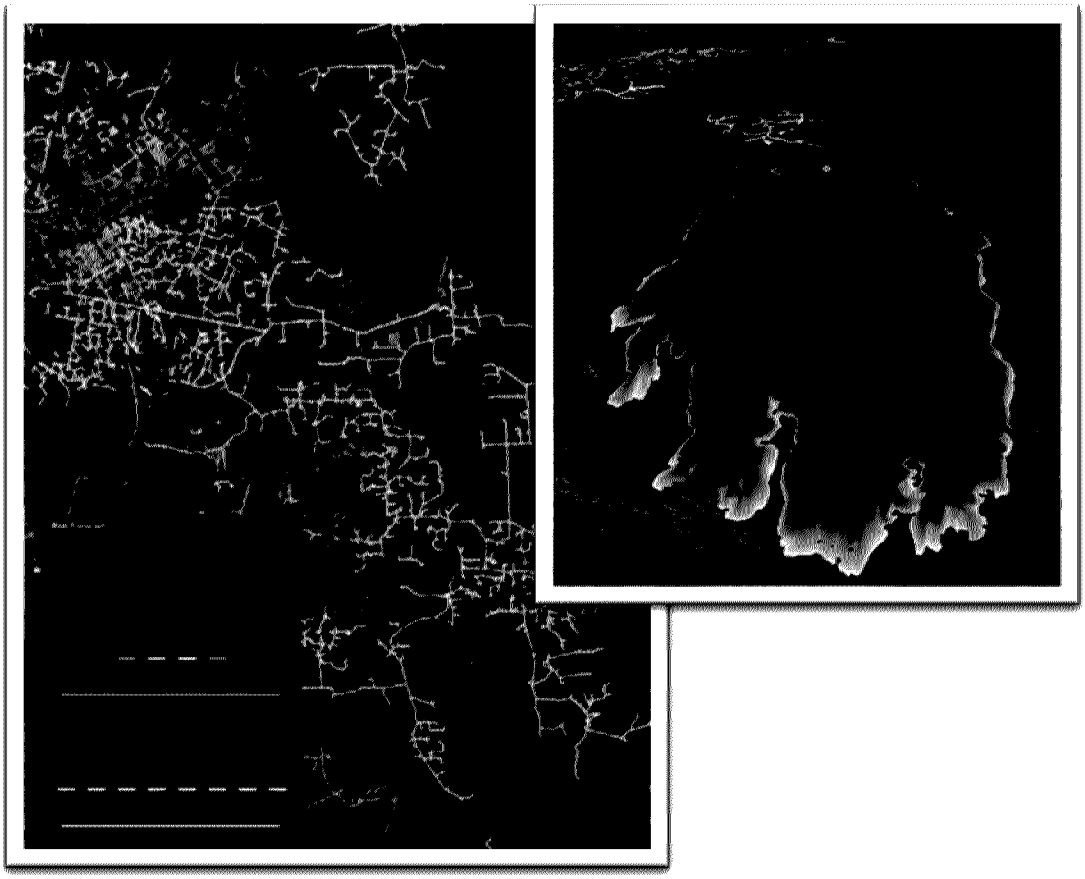
1. WRRM integrates ignition spread predictions with infrastructure information to determine which assets are most likely to cause significant damage to inform NDPP initiatives.

2. Tools help experts design mitigation projects to maximize risk reduction by focusing on those assets with the highest expected risk.

3. Detailed risk reduction reports inform planned hardening projects to gauge risk by individual asset, asset type, and at the circuit level.

As the multiple capabilities of Technosylva are deployed and its application matures, additional natural disaster threats will be integrated into the platform. The Technosylva program budget and related future enhancements budget is located in Section 4, Advanced Technologies and Strategies.

Figure 42. Fire Spread Risk Analysis Example



2.1.2. WILDFIRE CAMERA DEPLOYMENT

The Companies have 11 wildfire cameras deployed in their service territories with AI capability. The Companies continue to collaborate on options for further deployment of cameras through partnerships with the BLM and other agencies. The Companies plan to add 10 additional cameras through partnerships with University of Nevada, Reno.

The Companies will start a pilot program in 2023 for autonomous combined-technology fire detection/weather stations that leverage AI for detection and decision algorithms. The pilot project will consist of about 6 cameras installed in the Kyle Canyon/Angel Peak area. These fire detection cameras serve a different purpose than the existing cameras deployed around the State. Rather than being deployed on telecommunications towers on the top of a mountain, FireBIRD cameras are installed directly on local power poles and serve a dual purpose as a weather station.

2.1.3. SITUATIONAL AWARENESS PROGRAM COSTS

Table 1 below lists the situational awareness OMAG budget for weather stations and wildfire cameras for this Triennial Plan. This budget covers ongoing service fees associated with communications to the existing and proposed devices, along with calibration costs for the weather stations. Table 2 below is the capital budget for the deployment of additional wildfire cameras for this Triennial Plan.

Table 1. Situational Awareness OMAG Budget

OMAG	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Weather Stations	426,929	138,125	142,268	146,536
NPC	69,504	22,487	23,161	23,856
SPPC	357,425	115,638	119,107	122,680
Wildfire Cameras	1,362,557	388,000	457,080	517,477
NPC	199,163	46,000	69,810	83,353
SPPC	1,163,394	342,000	387,270	434,124

Table 2. Situational Awareness Capital Budget

Capital	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Wildfire Cameras	$ 1,840,129	$ 592,400	$ 613,135	$ 634,594
NPC	$ 389,211	$ 125,300	$ 129,686	$ 134,225
SPPC	$ 1,450,918	$ 467,100	$ 483,449	$ 500,369

2.2. OPERATIONAL PRACTICES

NV Energy endeavors to implement prudent and pragmatic steps to protect public safety and manage infrastructure integrity. Adaptive operational practices are a critical tool, especially where hardening activities are subject to lengthy permitting steps or seasonal work restrictions. Visualization tools that inform operational practices leverage situational and conditional awareness making targeted activities more effective and less disruptive. Shared visualization tools also mean that other organizations and agencies benefit from identical information to achieve operational synergies. These are also an integral part of the ongoing EWG collaborative deliberations and planning.

Grid automation is another operational tool where protective devices are incorporated into the system. While protective devices are not new to safe grid operations, advanced functionality of devices has grown at a rapid pace. Automation does not override the need for safe work practices. It is simply incorporated into the Companies' use of a multi-faceted approach for operational practices.

2.2.1. PROTOCOLS FOR HOT WORK AND PROJECTS IN THE WILDLAND AREAS

During fire season, the Companies take special safety measures, including those required by the WUI Code, such as federal decision memos and permits, to assure that work activities do not cause a wildfire ignition. In addition to minimizing "hot work" during fire season, preventive protocols include keeping firefighting equipment in an accessible location, having fire personnel and fire engines on standby, providing fire watch 1-3 hours after hot work is completed, assuring non-combustible areas around the work site, erecting barriers to contain sparks, avoiding driving on dirt roads, wetting the work area, monitoring weather hourly, and monitoring fire risk daily. Partnerships with fire agencies provide access to engines and fire suppression support that remain on standby and fire watch as part of vegetation management and prioritizing system hardening and rebuild projects. Crews are also available should a wildfire ignite the work area. Partner programs also provide fire and Emergency Management Services ("EMS") standby during PSOM events and on Red Flag Days.

2.2.2. RECLOSERS

To assure service continuity, the power grid is typically configured to reclose once the system has tripped due to transient conditions such as an animal contact or vegetation blowing through the area. This allows the temporary condition to clear and promptly return the system to normal operating condition. During fire season due to the possibility of creating a spark, the system is set to lock out until an inspection can confirm the conditions are safe to return the grid to service.

The Companies are requesting a capital pilot program with remotely operated intelligent reclosers. To lessen the impact of outages related to natural disasters, the ability to sectionalize the power grid is an industry best practice. Increased sectionalization can improve overall grid reliability, especially during fire season operating mode and PSOM events. Increased sectionalization is one approach under this Plan to gradually lessen the impacts of outage events. Further information is included in the Advanced Technologies Section.

2.2.3. PROTECTION AND INTEROPERABILITY

NV Energy intends to conduct a protection coordination study to harmonize protective relaying and proper interaction among protective devices. Even with increased interoperability and the addition of digital devices alongside legacy mechanical devices the system must safely open and reclose predictably and safely.

Favorable results of this engineering study will inform a future request for funding to upgrade field protection devices for improved grid performance under seasonal operating conditions, PSOMs, and during other severe weather events. Further information is included in the Advanced Technologies Section.

2.2.4. SPECIALIZED SAFETY TRAINING

At least on an annual basis, workers are trained in wildfire safe work practices and emergency procedures. In addition to the special hot work and recloser protocols, workers receive training in emergency operations and the Companies' Incident Command Structure ("ICS").

2.3. EMERGENCY MANAGEMENT AND PROACTIVE DE-ENERGIZATION (PSOM)

In collaboration with the public safety partners and the broader EWG, the Companies have harmonized their emergency management and operations with a broadened collaborative ICS. While emergencies are primarily associated with proactive de-energization to avoid the grid becoming a source of a wildfire ignition, there are other situations where the Emergency Response Organization ("ERO") may be activated for natural disaster events.

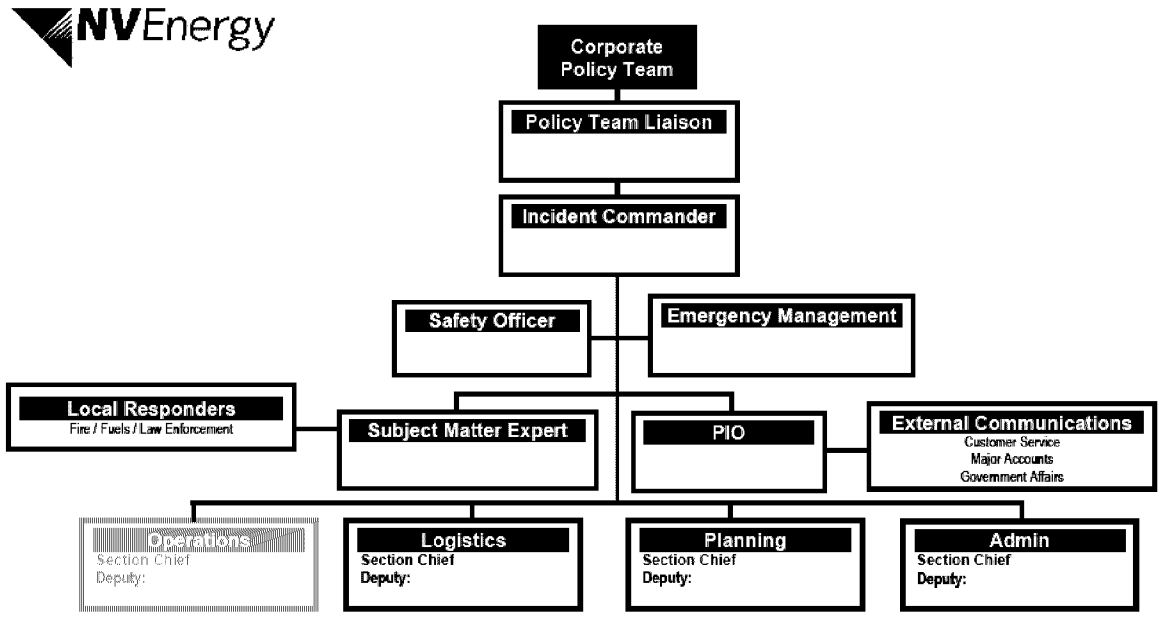
Emergency preparedness and operations includes the PSOM program where identified portions of the grid are proactively de-energized prior to extraordinary weather conditions that may pose threats to the public, customers, infrastructure, or the environment. This program includes areas of wildfire risk in Tier 3, Tier 2, and Tier 1E where proactive de-energization zones are identified. PSOM is considered an essential safety measure in areas of wildfire risk and disaster threats, until other mitigation, such as system resilience and hardening programs with longer lead times, are completed. As part of this program, there are also costs associated with weather analytics, meteorologist services, fire standby for red flag conditions, fuel sampling, de-energization, patrolling, restoration, customer resource centers ("CRCs"), communications, and back-up generator set-up.

2.3.1. EMERGENCY MANAGEMENT

The Companies respond to emergencies through the ERO, using the ICS, and following the Corporate Emergency Response Plan. When significant emergencies arise, such as PSOMs, earthquakes, and other severe weather events, the Companies' Incident Management Teams ("IMTs") are activated. The IMTs are comprised of an Incident Commander, Policy Team Liaison, Emergency Management, Safety, Public Information Officer, Subject Matter Expert, Operations Section, Logistics Section, Planning Section, and Administrative Section for professional response. See Figure 43 below.

The Companies have standing IMTs that rotate through on-call duty each week during wildfire season. There is also a reserve pool of employees for supporting these teams. Members of these teams are pursuing or have completed the Federal Emergency Management Agency Incident Command System courses 100, 200, 300, 700, and 800. The teams are responsible for creation and implementation of incident action plans for managing complex or expanded emergencies. The IMTs have been activated for PSOM events and participate in multiple event preparation training exercises.

Figure 43. Incident Management Team Chart



FirstNet, the nationwide public safety broadband network, is used for continuous internal and external cellular phone and iPad communication. The Companies own 12 Communication on Wheels ("COWs") for deployment during emergencies to facilitate communications and reliable internet when normal communication infrastructure is compromised. The Companies also have portable Wi-Fi devices to provide internet capability. NV Energy intends to incorporate Amateur Radio Emergency Services ("ARES"), using its own trained employees, as a back-up for all disasters and will assure the necessary equipment is situated in the north and south Emergency Operations Centers ("EOCs"). Handheld field radios are also available for deployment.

The Companies will continue to utilize contracted fire resources for advanced response to fire starts and protection of the Companies' infrastructure from wildfires.

2.3.2. PSOM

PSOM refers to a planned circuit outage that is activated by NV Energy when conditions pose a significant safety threat to the Companies' customers, infrastructure, or the public. PSOM is activated when conditions exist that create an unacceptable level of risk of electric infrastructure being damaged and causing an ignition. PSOM events may be initiated when the Companies' obligation to operate the system safely is jeopardized by natural conditions. PSOM procedures are typically enacted during the officially declared fire season, which may be adjusted based on prevailing weather conditions in a particular year. A series of quantitative and qualitative criteria must be met before proactive de-energization occurs. A PSOM event is followed by continued weather condition tracking and communication with the EWG and identified stakeholders. NV Energy balances the risk of the potential impacts of a power outage against the risk that energized equipment could be the source of a wildfire ignition.

The PDZ maps represent threat Tiers related to the Companies' Nevada and California assets.[22] NV Energy continues to collaborate with public safety partners, such as external fire agencies, the USFS and the BLM, in addition to assessing actual and predicted fuel loading and moisture content that considers historical meteorological conditions and previous fire incidents. NV Energy continues to align Tiers with fuel loading and fire weather conditions and information provided by the State of Nevada. The Companies continue to utilize contracted fire resources for standby during red flag weather conditions. This ensures quick response to fire starts during critical fire weather conditions.

PSOM decisions are determined through formalized protocols. The full PSOM Plan containing the details of a proactive de-energization event is included in Appendix C. The PSOM Plan details the thresholds, mitigation measures, terminology, communications protocols with internal, and external stakeholders, de-energization, re-energization, COW deployment, back-up power supply generators, and mobilization of CRCs.

NV Energy seeks to align notifications, communication, and shared information with telecommunications companies or Communications Infrastructure Providers ("CIPs") in a similar manner to protocols with local and state emergency management and fire resources. This ensures advanced notification, with consistent, and defined communication channels, single points of contact, and alignment with established protocols.

During PSOM events, the Companies support on-site, and back-up power to certain key facilities that include portable generators in strategic locations. Recently, a microgrid to support Kyle Canyon at Mt. Charleston has proven successful so the Companies are identifying similar opportunities for these types of supplemental power to support service continuity during PSOM events.

2.3.3. SERVICE CONTINUITY AND MICROGRIDS

The Companies provide emergency generator equipment, electric distribution equipment, and comprehensive services to restore and maintain electric service to critical facilities (e.g., first responders, healthcare, water, and sewage treatment, telecommunications, etc.) identified during a natural disaster event.

NV Energy has successfully deployed a microgrid at Kyle Canyon to support customers with service continuity during PSOM events. Kyle Canyon was selected as a candidate microgrid site due to the significant number of PSOMs experienced in the Mt. Charleston area due to thresholds being exceeded in the Angel Peak area. NV Energy anticipates using this microgrid to support service continuity during construction season to minimize impacts of outages needed to complete grid hardening and resilience programs in the area.

The success of the Kyle Canyon microgrid is an important demonstration of the benefits of microgrid for grid resilience. NV Energy will explore deployment of additional microgrids in vulnerable areas of its service territory, such as the area around Lake Tahoe, to support communities, and businesses during PSOM events and during construction season.

[22] https://www.nvenergy.com/safety/psom

Figure 44. Kyle Canyon Microgrid

The estimated costs for this project are approximately $10,000 for improvement at the substation required to accommodate the transition. The operating expenses are driven by the generator rental costs which are approximately $25,000 per month and $7,000 per event. The Companies are also exploring purchasing a generator (or several generators) as a capital expense for this project in 2023. The initial estimated purchase price for the generator(s) would be approximately $850,000 and this would be funded though General Rate Case ("GRC") capital funds.

2.3.4. PSOM AND EMERGENCY RESPONSE BUDGET

Table 3 below lists the PSOM budget for this Triennial Plan.

Table 3. PSOM Triennial Budget

	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
PSOM	$ 7,782,715	$ 2,286,689	$ 2,578,127	$ 2,917,899
NPC	$ 4,092,679	$ 1,206,489	$ 1,356,087	$ 1,530,103
SPPC	$ 3,690,036	$ 1,080,200	$ 1,222,040	$ 1,387,796

Table 4 below lists the Emergency Response budget for this Triennial Plan.

Table 4. Emergency Response Triennial Budget

	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Emergency Response	$ 3,117,707	$ 994,386	$ 1,038,542	$ 1,084,779
NPC	$ 1,148,730	$ 370,000	$ 382,784	$ 395,946
SPPC	$ 1,968,976	$ 624,386	$ 655,758	$ 688,833

2.4. VEGETATION MANAGEMENT

Vegetation is a key driver of outages associated with natural disasters. Falling limbs, vegetation blowing into energized equipment, vegetation overgrowth and other vegetative debris impacts are potential wildfire ignition sources or causes of outages related to natural disasters. Right-of-Way ("ROW") clearing, tree trimming and pole grubbing can be implemented as the first mitigation activity due to shorter lead times when compared to grid hardening work that is typically on a longer lead time. NV Energy takes a programmatic approach to vegetation management with activities customized to the associated risks within the HTAs. Prioritized patrols and vegetation clearing work has been initiated in all HTAs.

Vegetation clearance around infrastructure includes the removal of hazardous trees, creating resilient corridors, and maintaining fuel breaks for wildfires. Prudent vegetation management practices focus on minimizing the likelihood of vegetation contacting lines and reduces vegetative fuels that can ignite or cause fire spread near facilities. Vegetation management is a required activity to demonstrate compliance with IWUIC, CWPPs, and the permits from the AHJs. Clearing vegetation in HTAs also protects against vegetation incursions from other forms of natural disasters including winter storms, high wind events, and monsoons.

NDPP funding targets vegetation management wildfire treatments in Tier 3, 2, 1E, and 1 only. General Rate Case funding is used for vegetation management treatments outside of HTAs. The vegetation management program consists of four key elements: patrolling, tree trimming, pole grubbing and ROW clearing, and fuel mapping.

2.4.1. PATROLLING AND TREE TRIMMING

The Companies have developed protocols for patrolling and vegetation management, requiring that a certified arborist or similarly qualified person conduct evaluation patrols prior to implementing mitigation work. Patrols identify hazard trees or potential vegetation impacts between clearing cycles or prior to cycle treatment. The Companies have performed extensive patrols and removed hundreds of hazard trees to protect electric infrastructure. In this Triennial Plan, adjustments reflect a transition as the initial patrols and clearance work evolves to ongoing maintenance treatments.

Tree trimming aerial work is performed by contracted expert resources to maintain clearances between conductors and vegetation. This work includes prescheduled cyclical and reactive tree trimming based on reported conditions. Tree trimming work can include total tree removals, use of cranes or helicopters, and scheduling of equipment outages to facilitate corrections. Tree trimming work is usually coordinated with pole grubbing and ROW clearing to increase efficiency in managing debris removal and project completion.

2.4.2. POLE GRUBBING AND ROW CLEARING

Pole grubbing and ROW clearing includes the removal of ground vegetation around the Companies' facilities. Herbicide treatment has been successful around poles and in the ROW to mitigate cheatgrass and sage brush growth. This treatment reduces the yearly ROW maintenance to a 2–3-year cycle. Herbicide application requires special permits and may not be used in protected or sensitive areas; approval is typically granted by the AHJ. The schedules include cycles of pole grubbing and ROW clearing areas both with and without herbicide.

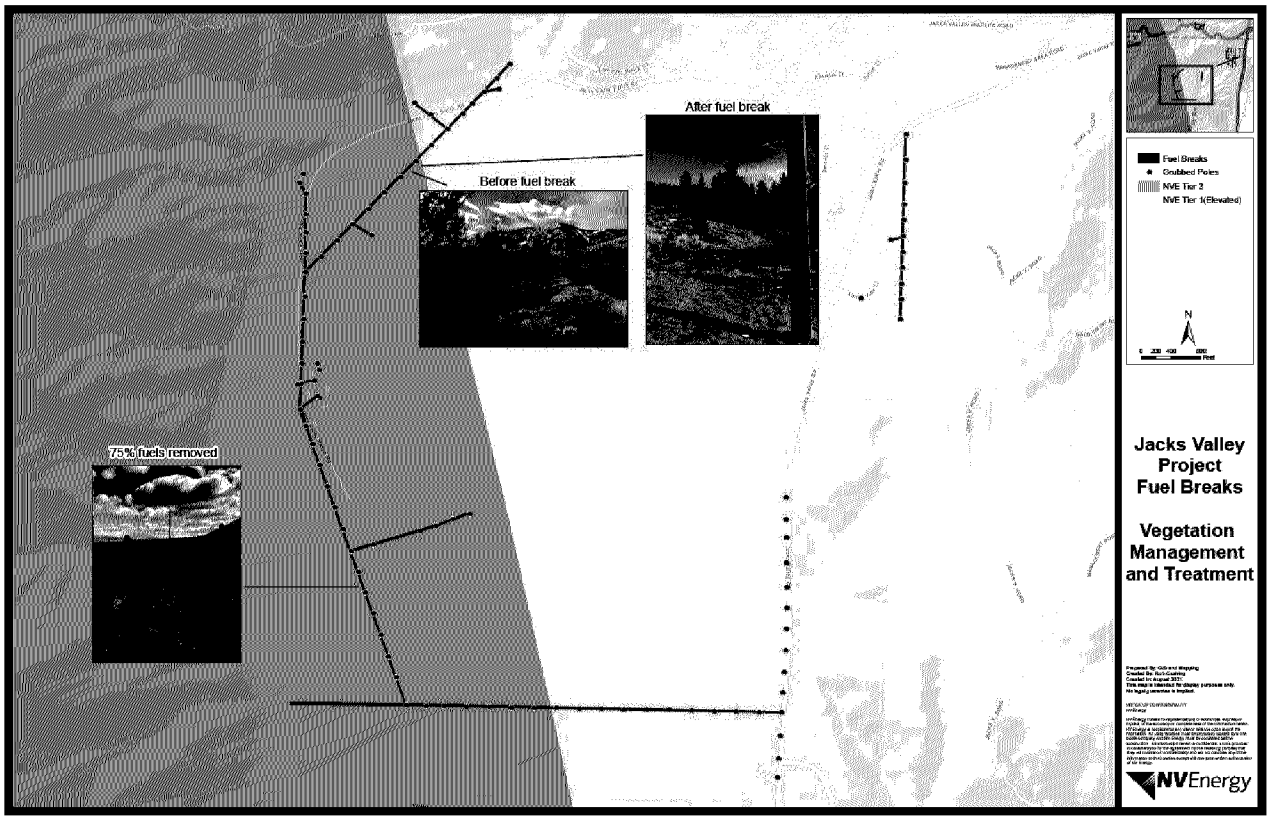
Most organizations require a minimum pole grubbing radius of 20 feet. The requirement can expand to 30 feet depending on the fuel type and equipment type on the pole. Fuel treatments in the Humboldt-Toiyabe National Forest ("Humboldt-Toiyabe" or "HTNF") and USFS Lake Tahoe Basin Management Unit ("LTBMU") have a minimum of 20 feet pole grubbing requirement. Nevada BLM requires a minimum clearance of 30 feet; a standard that is being considered for adoption by other agencies. NV Energy continues to work with the local, state, and federal agencies to align best practices and treatment methods for special permit requirements. A recent HTNF requirement requires tree removal within 2 weeks from being cut.

NV Energy seeks to create fuel breaks, blocks of altered vegetation intended to stop or control wildfire spread, within in all Tiers where the AHJ recommends or requires this work. The ability to create fuel breaks is subject to approval from AHJs or private landowners and where topography is suitable. Fuel removal includes physical disposal, mastication, chipping, and prescribed pile burning. Some fuel cannot be hauled away or chipped, especially under hazardous remote conditions. In some areas, the material collected and piled during the summer may be eliminated or burned in the winter when fire risk is lower. Disposal of wood waste includes beneficial fuel scattering for erosion control, donations of chips to state and city parks and in response to requests from citizens. Future uses of the combustible trimmed and grubbed vegetation may include collaboration with biomass facilities to supply waste wood fuel for bioenergy.

Partnership programs with 16 state and local fire agencies across Nevada help the Companies enhance vegetation clearing around utility poles, including pole grubbing, and ROW vegetation clearing. Crews are qualified by the National Wildfire Coordinating Group and perform the work under the supervision of a field forester. Crews manage vegetative ground fuels using specialized removal techniques around power lines. They also support clearing programs around other transmission and distribution ("T&D") infrastructure, such as substations. Collaboration with local agencies is an industry best practice to identify and implement effective treatments that prevent the growth of noxious or flammable weeds that lowers fuels treatment costs. Agency partner knowledge aides in prioritizing vegetation management activities to help keep fires smaller as they can respond quickly to local fires, protecting communities, and infrastructure. Where practical, the Companies also use targeted grazing with Spanish goats, sheep, or cows to remove flashy fuels and flammable brush.

Figure 45 below shows the before and after results of a project in the Jacks Valley area of northern Nevada.

Figure 45. Pole Grubbing/ROW Clearing Example



2.4.3. RESILIENT CORRIDORS

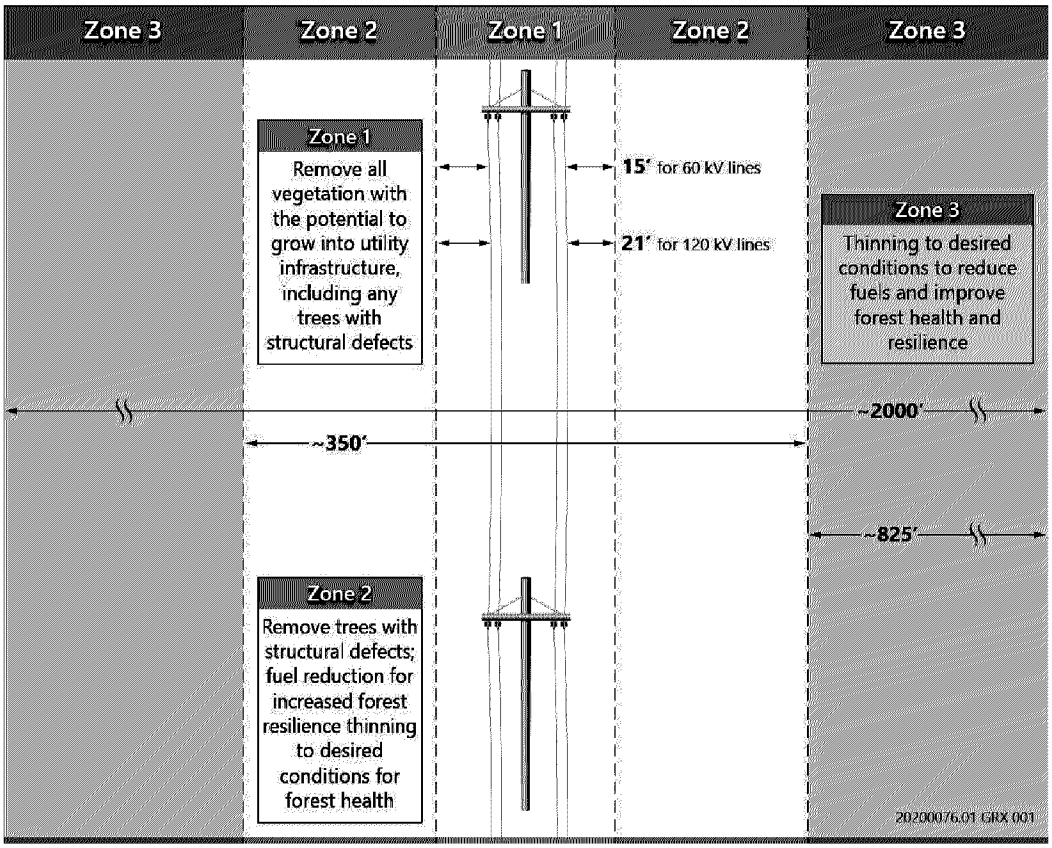
NV Energy successfully collaborates with forest services, BLM, local and state fire agencies and other organizations to select highest threat areas to create resilient corridors of cleared vegetation to deter fire spread. While the emphasis of resilient corridors is currently focused on Wildfire Tiers, cleared corridors also minimize impacts to electric infrastructure in HTAs during other natural disaster events.

NV Energy has initiated formalized agreements to create resilient corridors based on the success of the Resilient Corridors Agreement with the USFS (both the LTBMU and the Carson Ranger District of HTNF) included in Appendix F. Recent data from the USFS[23] indicates 750,000 dead trees in the HTNF and 1,400,000 dead trees in the LTBMU, supporting the criticality of these programs.

Resilient Corridors focused on Wildfire Tiers specify three clearance Zones for ROWs, as shown in Figure 46. Vegetation clearance tolerances vary by operating voltages and consider the local topography and previous fuel treatments. NV Energy is formalizing agreements with other agencies with Resilient Corridors Agreements that are based on this approach.

[23] https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd1088611.pdf?mibextid=Zxz2cZ

Figure 46. Resilient Corridors Clearance Example



- Zone 1 (15 feet or 21 feet on each side of the outer power line): remove all trees or portions thereof and removal of ground fuels to achieve a noncontiguous fuel "mosaic" pattern consistent with the IWUIC, CWPPs, healthy forest treatments, and in accordance with the NDPP. This includes the removal of all vegetation within 15 feet or 21 feet of circuit infrastructure, depending on the voltage.

- Zone 2 (between 15 and 175 feet on each side of the Zone 1 clearance boundary): remove all hazard trees and other hazards that could impact the infrastructure, appropriate crown spacing for the trees to improve forest health and resilience to fire, insect, disease, and drought. Thin the ground vegetation to remove continuous patterned fuels – 75 to 80% removal of the ground vegetation.

- Zone 3 (between 175 and approximately 1,000 feet on each side of the Zone 2 boundary): reduce fuel loads and thin the forest to desired conditions that improve forest health and resilience to fire. Removal of ground vegetation to desired conditions that improves forest health and resilience to fire.

NV Energy continues to participate in regular coordination meetings with the USFS, BLM, State Lands and the Interdisciplinary Team ("IDT") to resolve issues and address schedule constraints.

Table 5 below lists current and near-final Resilient Corridors Agreements with the AHJ.

Table 5. Resilient Corridors Agreements

Authority Having Jurisdiction	Location/Area	Agreement Type	Agreement Status
USFS	Humboldt-Toiyabe Statewide	Cost Share Agreement	In effect
USFS	Lake Tahoe Basin Management Unit	Resilient Corridors Decision Memo	In effect
USFS	Humboldt-Toiyabe Mount Charleston Spring Mountains	Master Permit	In effect
Tahoe Regional Planning Agency	Lake Tahoe	Memo	In effect
Nevada State Parks	Lake Tahoe	Fuel Reduction and Mitigation License	In effect
USFS	Humboldt-Toiyabe Carson Ranger District	Master Permit	Pending - under review
USFS	Humboldt-Toiyabe Lake Tahoe	Resilient Corridors Decision Memo	In effect
USFS	Lake Tahoe Basin Management Unit	Shared Stewardship Agreement	In effect
Washoe Tribe	Carson/Douglas/Tahoe	Shared Stewardship Agreement	Pending
BLM	Carson Range	Shared Stewardship Agreement	Pending
USFS	Humboldt-Toiyabe- Austin and Tonopah	Master Permit	Pending
USFS	Humboldt-Toiyabe Bridgeport	Master Permit	Pending
USFS	Humboldt-Toiyabe Ely	Master Permit	Pending
BLM	Statewide	Shared Stewardship Agreement	Pending

2.4.4. VEGETATION MANAGEMENT SCHEDULE

The Companies' patrol and vegetation management cycles are presented in Table 6. The Wildfire Tiers are targeted for tree trimming cycle completion in 2027. Areas that are subject to pole grubbing or ROW clearing

per IWUIC, CWPPs, permits, and other requirements are projected to be addressed by 2032. Prioritized corrective actions identified during other activities that require immediate attention are addressed promptly.

Table 6. Proposed Vegetation Management Schedule

Program	Tier 3	Tier 2 and 1E	Tier 1	Non-Tier (Non-NDPP)
Patrolling	Annual	2-Year	4-Year	6-Year
Tree Trimming	4-Year	4-Year	4-Year	6-Year
Pole Grubbing/ROW Clearing (non-herbicide)	1-Year	1-Year	1-Year	N/A
Pole Grubbing/ROW Clearing (herbicide)	2-Year	2-Year	2-Year	N/A

NV Energy's multi-pronged approach to fuels mitigation and treatment work reduces future cycle growth and allows for improved implementation of Plan activities. It also affords cost sharing between NV Energy and state and federal partners. Work performed to date has significantly contributed to critical fuel breaks that mitigate fire spread and protect vulnerable communities. Most of the fuel breaks start at the boundary of the Resilient Corridors project on both private and state managed lands.[24]

2.4.5. FUEL MAPPING

NV Energy obtains some fuel mapping information through Technosylva. Additional fuel mapping and targeted analysis will help to more fully evaluate whether vegetation management treatments are successful and to identify areas requiring accelerated treatment. Several new technologies are under consideration for better fuel mapping, including the use of Unmanned Aerial Vehicles ("UAVs" or "drones"), Light Detection and Ranging ("LiDAR") capability, and high-resolution satellite imagery. The funding for this fuel mapping is for existing technology that has been successfully used previously. In Section 4.4 Advanced Technologies and Strategies there is additional funding requested for newer, emerging technologies related to UAV's and satellite imaging.

2.4.6. VEGETATION MANAGEMENT BUDGET

Table 7 below lists the vegetation management budget for this Triennial Plan.

Table 7. Vegetation Management Triennial Budget

	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Vegetation Management	$ 135,582,922	$ 50,377,000	$ 43,075,000	$ 42,130,922
NPC	$ 19,115,577	$ 9,404,065	$ 5,355,756	$ 4,355,756
SPPC	$ 116,467,345	$ 40,972,935	$ 37,719,244	$ 37,775,166

As part of this Triennial Plan's vegetation management budget, NV Energy is anticipating some level of grant funding to offset costs, enhance project outputs, and achieve cycle goals. See Section 4 for more discussion on grant funding.

[24] https://eip.laketahoeinfo.org/Project/FundingRequestSheet/02.01.02.0016

2.5. CONDITIONAL AWARENESS: CIRCUIT PATROLS, DETAILED INSPECTIONS AND CORRECTIONS

Circuit patrols and detailed inspection of overhead electrical facilities provide the conditional awareness required to understand asset health, a key component of understanding infrastructure risk. Qualified electric line personnel identify conditions that could result in potential faults, including situations where infrastructure may no longer be able to operate as designed. Electric equipment is susceptible to external factors, such as weather conditions. Infrastructure that has been distressed could become a source for or perpetuate an existing natural disaster threat.

The NDPP includes two inspection and patrols programs that focus on HTAs identified through the risk analysis outlined in Section 2. The focus of inspections and patrols is to programmatically identify, assess, and remediate hazardous findings related to overhead electric facilities. While each program focuses on specific conditional awareness for natural disaster threat risk reduction actions, there are broader benefits, such as wildfire-related programs also improving risk reduction from winter storm impacts.

The **Wildfire Tier** Patrol and Inspection Program targets wildfires and grassland fires in designated fire Tiers 3, 2, 1E, and Tier 1.

The **Circuit Resilience** Patrol and Inspection Program is currently focused on southern Nevada impacted distribution circuits in HTAs that typically experience wind, flood, microburst, and monsoon events. Identification of circuits posing risk associated with natural disasters is based on a review of the past five years of nature-caused outages. The top 20 worst performing circuits are candidates for the Circuit Resilience Patrol and Inspection Program. A worst performing circuits analysis is an industry standard for gauging infrastructure health that can be broadly applied for vulnerability to natural disasters.

Circuit Patrols: brief visual inspections performed by viewing each facility from a clear vantage point to identify obvious damage or defects to the transmission or distribution system. Observations of potential hazards include infrastructure and hazards within the ROW that may endanger the public or adversely affect the integrity of the electric system. Patrols identify elements that could potentially cause a spark leading to ignition of fire or propagate damage from other natural disasters. Patrols are conducted more frequently than detailed inspections. Patrols are typically performed by vehicle but can be performed on foot, from aircraft, or using UAVs.

Detailed Inspections: careful visual inspections accomplished by visiting each transmission or distribution structure, as well as inspections of spans between structures. Inspections are intended to identify defects, potential safety hazards, and deterioration of the facilities or hardware. The inspections program identifies equipment anomalies for correction to reduce the potential of equipment-caused ignition or other potential hazards. As a rigorous process, detailed inspections are performed less frequently than patrols. The cadence is based on established risk areas.

Condition: predetermined list of codes that result in a standardized checklist for recording detailed inspection results. Conditions are recorded by inspectors to capture and communicate observations and inform the scope for future corrective actions. Multiple conditions can be associated with a single asset.

Correction. scope of work required to remove an identified condition or multiple conditions. Once an inspection is complete with a reported condition, then the condition is prioritized and coordinated into work groups. Then a field action is created from the database. Upon completion of the field action, the correction field action is closed for a complete trail from the inspection record date to the correction completion date.

Priority Designation: Codes that signify the urgency of remediating an identified correction.

Priority 0 - presents imminent risk to safety.

Priority 1 – presents no immediate risk but requires attention at first opportunity as worsening of the issue could cause an increase in risk level.

Priority 1E – a Priority 1 classification that has worsened, requiring expedited completion faster than design and permitting lead times can accommodate.

Priority 2 – presents no risk, requiring attention as resources are available.

NV Energy also performs a broader assessment to identify where the accumulation of repairs may indicate a need for rebuild or replacement in the system hardening programs.

Inspection Frequency

NV Energy maintains the frequency of circuit patrols and detailed inspections for Wildfire HTAs with the proposed timelines shown in Table 8. More frequent patrols or inspections may be as necessary for safe operation of the electric system.

Table 8. Patrol and Inspection Frequency – HTA Wildfire Risk

Heightened Fire Risk Areas Circuit Patrol and Detailed Inspection Frequency				
Overhead Transformers, Switching / Protective Devices, Regulators / Capacitors, Conductor and Cables, Wood Poles and other overhead assets	Circuit Patrol		Detailed Inspection	
	Fire Risk Tiers 3, 2, 1E	Fire Risk Tier 1	Fire Risk Tiers 3, 2, 1E	Fire Risk Tier 1
	Annual	Every 4 years	Every 5 years except every 3 years for Tier 3	Every 10 years

NV Energy maintains the following schedule for the Circuit Resilience Program for non-Wildfire HTAs shown in Table 9, based on poor circuit performance as an early indicator of potential risk.

Table 9. Patrol and Inspection Frequency – HTA Circuit Resilience

Circuit Resiliency Circuit Patrol and Detailed Inspection Frequency			
Overhead Transformers, Switching / Protective Devices, Regulators / Capacitors, Conductor and Cables, Wood Poles and other overhead assets	NPC Top 20 Worst Performing Circuits	Circuit Patrol	Detailed Inspection
		1 thru 20	1 thru 10
		Annual*	Every 4 years
* Detailed inspection only for years when patrol and inspection fall on the same year			

Detailed Inspection Process

Detailed inspections are performed by a qualified inspector using a handheld tablet preloaded with a standardized checklist to record all elements of the inspection, including photos of the subject pole and adjacent spans. During 2021 and 2022, NV Energy completed system enhancements enabling upload of inspection export data to NV Energy's Work and Asset Management System, Maximo. Inspection data can be validated and stored within Maximo's Condition Asset Management module and photos are uploaded to the Geographic Information System ("GIS"). Through the 2022 development of management reporting and dashboard tracking, inspection data can now be organized, transmitted, and assessed within Maximo's Condition Asset Module to complete the inspection process cycle. Figures 47 and 48 show the detailed inspection interactive dashboard for tracking corrections and their status.

In 2020 and 2021, the inspection data previously resided in separate external databases owned and managed by a third party performing NV Energy detailed inspections. A backlog of Priority 1 repairs is attributable to the requirement to filter, organize, or group condition asset data based on external datasets. With recent Maximo system enhancements that include new reporting capabilities, NV Energy proposes a 24-month plan to resolve the backlog of Priority 1 OMAG corrections beginning in May 2023.

Figure 47. Conditional Awareness Inspections and Corrections Report Example

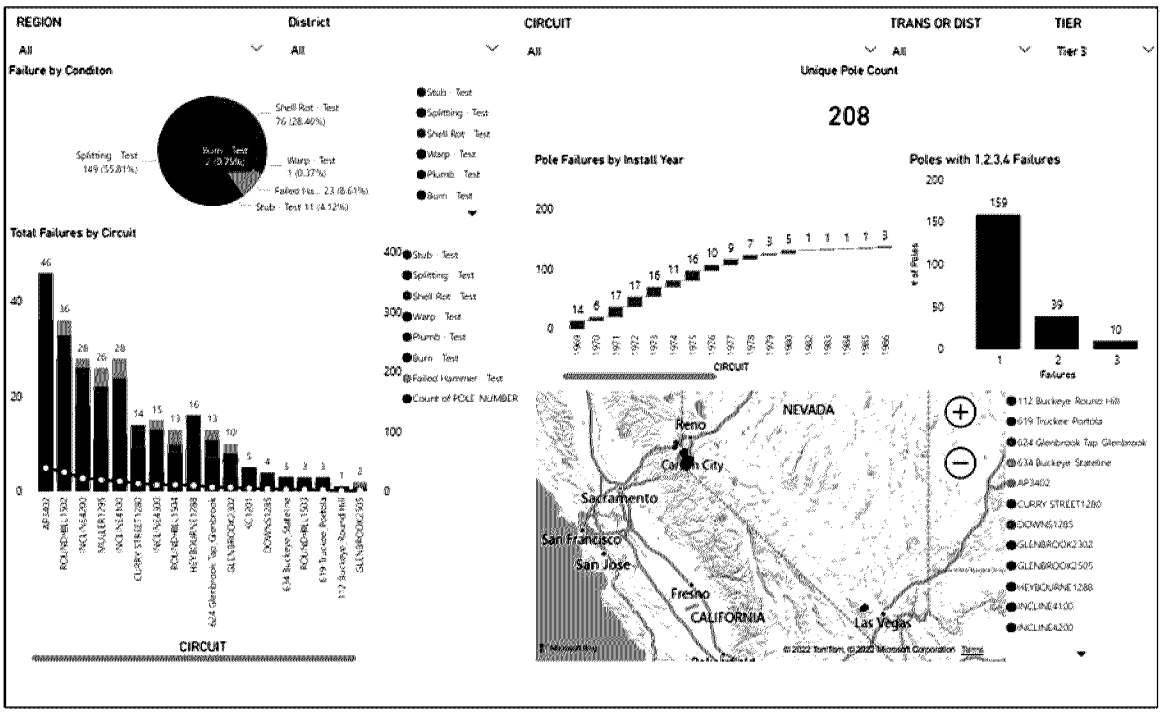
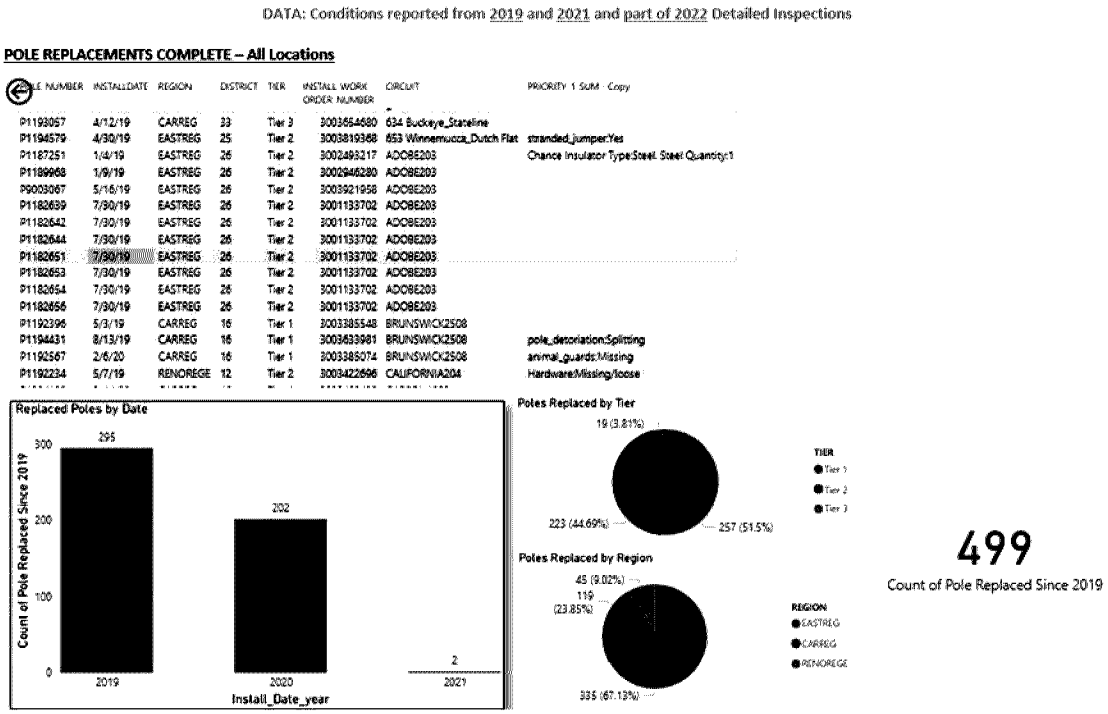


Figure 48. Conditional Awareness: Corrections Tracking Report Example



2.5.1. FIRE TIER PATROLS, INSPECTIONS, AND CORRECTIONS

HTA Wildfire: Patrols, Inspections, and Corrections

NV Energy evaluated Wildfire Tier patrol and inspection schedules and costs for 2019 through 2022 to improve efficiency and cost predictability through the development of levelized scheduling. NV Energy proposes the adjusted fire Tier patrol schedule shown in Table 10. This adjusted schedule seeks to accomplish levelizing patrols and inspections schedules to the fullest extent possible, while maintaining industry standard for patrol of high fire risk areas. This adjustment initiates a trend to flatten, or levelize the schedule completely in the coming years beyond this Plan. Beginning in 2027, patrol and inspections schedules can be further levelized.

It is important to note that when patrols and inspections are scheduled for the same cycle year, only the detailed inspection will be performed. Standard patrol forms for these circuits will record the overlap year and the date the detailed inspection is performed in place of the patrol.

Table 10. Fire Tier Patrols (Adjusted) – SPPC and NPC

	Pole Count			Total	Cost Forecast			Plan
	2024	2025	2026	Poles	2024	2025	2026	Budget
Tier 3 NPC	485	0	485	970	$ 22,863	$ -	$ 22,863	$ 45,726
Tier 3 SPPC	7,589	0	5,059	12,648	$ 357,745	$ -	$ 238,481	$ 596,226
Tier 2 SPPC	0	8,022	8,022	16,044	$ -	$ 141,287	$ 108,261	$ 249,548
Tier 1E SPPC	29,265	13,169	16,096	58,530	$ 1,134,167	$ 375,402	$ 655,321	$ 2,164,890
Tier 1 NPC	501	501	501	1,503	$ 23,617	$ 23,617	$ 23,617	$ 70,851
Tier 1 SPPC	5,656	5,656	5,656	16,968	$ 266,624	$ 266,624	$ 266,624	$ 799,872
Total NPC	986	501	986	2,473	$ 46,480	$ 23,617	$ 46,480	$ 116,577
Total SPPC	42,510	26,847	34,833	104,190	$ 1,758,536	$ 783,313	$ 1,268,687	$ 3,810,536

NV Energy proposes to adjust fire Tier inspections as shown in Table 11, using a schedule that meets industry standard for detailed inspections within high fire risk areas.

Table 11. Fire Tier Inspections (Adjusted) – SPPC and NPC

	Pole Count			Total	Cost Forecast			Plan
	2024	2025	2026	Poles	2024	2025	2026	Budget
Tier 3 NPC	-	485	-	485	$ -	$ 35,017	$ -	$ 35,017
Tier 3 SPPC	-	7,589	2,530	10,119	$ -	$ 547,926	$ 182,666	$ 730,592
Tier 2 SPPC	10,028	2,006	2,006	14,040	$ 724,022	$ 144,833	$ 144,833	$ 1,013,688
Tier 1E SPPC	-	16,096	13,169	29,265	$ -	$ 1,162,131	$ 950,802	$ 2,112,933
Tier 1 NPC	334	334	334	1,002	$ 24,115	$ 24,115	$ 24,115	$ 72,345
Tier 1 SPPC	3,770	3,770	3,770	11,310	$ 272,194	$ 272,194	$ 272,194	$ 816,582
Total NPC	334	819	334	1,487	$ 24,115	$ 59,132	$ 24,115	$ 107,362
Total SPPC	13,798	29,461	21,475	64,734	$ 996,216	$ 2,127,084	$ 1,550,495	$ 4,673,795

The NDPP Second Amendment (Docket No. 22-08001) approved $8,455,133 of additional funding to address the first half of the existing backlog of Sierra Operating Expense ("OMAG") Priority 1 corrections during 2023. NV Energy requests $7,308,600 to complete the remaining backlog of Sierra OMAG corrections, anticipating completion by 2024 year-end. Table 12 and 13 show the actual remaining backlog and the anticipated OMAG corrections forecasted to materialize 2024 through 2026. Forecasted corrections are estimated using the historical run rate of corrections from past patrols and inspections.

Estimates include completion of Priority 0 corrections immediately. Estimates for Priority 1 OMAG corrections going forward anticipate that 33% of future OMAG corrections identified will be completed within twelve months and 66% of OMAG corrections will be completed within twenty-four months from receipt of validated condition data.

Table 12. Fire Tier Corrections Sierra OMAG

	OMAG Corretions Counts			Cost Forecast			Plan
Sierra	2024	2025	2026	2024	2025	2026	Budget
Actual Backlog	937	937	937	$ 2,436,200	$ 2,436,200	$ 2,436,200	$ 7,308,600
Forecasted	1,217	2,035	1,612	$ 1,609,309	$ 3,584,764	$ 5,109,165	$ 10,303,238
Total	2,154	2,972	2,549	$ 4,045,509	$ 6,020,964	$ 7,545,365	$ 17,611,838

Table 13. Fire Tier Corrections Nevada Power OMAG

	OMAG Corrections Counts			Cost Forecast			Plan
Nevada Power	2024	2025	2026	2024	2025	2026	Budget
Actual Backlog	-	-	-	$ -	$ -	$ -	$ -
Forecasted	139	716	139	$ 102,073	$ 257,162	$ 276,448	$ 635,683
Total	139	716	139	$ 102,073	$ 257,162	$ 276,448	$ 635,683

Tables 14, 15, 16 and 17 show the remaining Priority 1 pole replacement backlog and anticipated Priority 0 and Priority 1 pole replacements forecasted from 2024 through 2026 for Fire Tier patrols and inspections. Forecasted pole replacements use a historical pole replacement run rate.

Priority 0 pole replacements are completed immediately based on a "failure" status and are exempt from standard design and permitting long lead times to construct. Priority 1 pole replacements typically require formal design and permitting subject to jurisdictional requirements and lead times. In all cases, NV Energy assesses pole replacement projects to coordinate the most expedient means for replacement. Pole replacements are assessed to identify overlap with other NDPP projects to determine if pole corrections can be coordinated with the timing of other NDPP projects.

NV Energy streamlined many single pole replacements around Lake Tahoe through collaborative efforts with the Tahoe Regional Planning Authority ("TRPA"), a sensitive environmental zone with work restrictions, to modify existing maintenance agreements, allowing flexibility to replace single poles without design and permits within land capability zones 4-7.[25] Collaboration continues to establish a master permit for pole replacements within more sensitive land capability zones 1-3.

NDPP funding for pole replacements is exclusive to vintage poles with more than 70% of useful life remaining. Replacement of older vintage poles are funded using general operating funds.

Table 14. Fire Tier Pole Replacement Counts Nevada Power

	Pole Replacements Counts		
Nevada Power	2024	2025	2026
Actual Backlog	-	-	-
Forecasted	22	42	22
Total	22	42	22

Table 15. Fire Tier Pole Replacement Nevada Power - Capital

Nevada Power	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Inspections & Corrections	$ 1,828,714	$ 274,751	$ 695,508	$ 858,455
Tier 1 Priority Pole Replacements	$ 1,124,575	$ 201,909	$ 461,333	$ 461,333
Tier 3 Priority Pole Replacements	$ 704,139	$ 72,842	$ 234,175	$ 397,122

[25] https://naldc.nal.usda.gov/download/CAT10310193/PDF

Table 16. Fire Tier Pole Replacement Counts Sierra

	Pole Replacements		
Sierra	2024	2025	2026
Actual Backlog	486	485	485
Forecasted	899	1,553	1,219
Total	1,385	2,038	1,704

Table 17. Fire Tier Pole Replacements Budget Sierra - Capital

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Inspections & Corrections	$ 9,764,401	$ 2,616,201	$ 3,989,534	$ 3,158,666
Tier 1 Priority Pole Replacements	$ 2,493,953	$ 774,667	$ 886,203	$ 833,083
Tier 1E Priority Pole Replacements	$ 4,052,582	$ 1,433,068	$ 1,283,197	$ 1,336,317
Tier 2 Priority Pole Replacements	$ 600,233	$ 200,933	$ 222,567	$ 176,733
Tier 3 Priority Pole Replacements	$ 2,617,633	$ 207,533	$ 1,597,567	$ 812,533

2.5.2. HTA CIRCUIT RESILIENCE PATROLS, INSPECTIONS AND CORRECTIONS

NV Energy proposes to levelize Circuit Resilience patrols and inspections as shown in Table 18.

Table 18. Circuit Resilience Patrols, Inspections Nevada Power - OMAG

	Pole Count			Cost Forecast			Plan
NPC	2024	2025	2026	2024	2025	2026	Budget
Circuits 1-10	2,750	2,750	2,750	129,635	198,550	129,635	457,820
Circuits 11-20	2,750	2,750	2,750	129,635	129,635	129,635	388,905
Total	5,500	5,500	5,500	259,270	328,185	259,270	846,725

Circuit Resilience Corrections

Table 19 shows anticipated Circuit Resilience OMAG repairs forecasted for 2024 through 2026. Forecasted corrections are estimated using past patrols and inspections historical run rate. Estimates include immediate completion of Priority 0 corrections. Projections for Priority 1 OMAG corrections anticipate 33% will be completed within twelve months and 66% will be completed within twenty-four months.

Table 19. Circuit Resilience Corrections Nevada Power - OMAG

	OMAG Repairs			Cost Forecast			Plan
NPC	2024	2025	2026	2024	2025	2026	Budget
Circuits 1-10	29	594	29	573,749	748,862	1,110,148	2,432,759
Circuits 11-20	29	29	29	573,749	39,226	37,351	650,326
Total	58	623	58	1,147,498	788,088	1,147,499	3,083,085

Tables 20 and 21 show the forecasted Priority 0 and Priority 1 pole replacements beginning in 2024 through 2026. Pole replacements are forecasted using an historical run rate of past pole replacements.

Priority 0 pole replacements are completed immediately based on a "failure" status and are exempt from long lead time design and permitting requirements. Priority 1 poles are assessed to determine the most expedient replacement based on AHJ permitting requirements. Pole replacements are further assessed to determine overlap with other NDPP projects to coordinate with other overlapping NDPP projects whenever possible. NDPP funding for pole replacements is limited to vintage poles with more than 70% of useful life remaining. Replacement of older vintage poles are funded using general operating funds.

Table 20. Circuit Resilience Nevada Power Pole Replacements Counts

	Pole Replacements		
NPC	2024	2025	2026
Circuits 1-10	18	133	17
Circuits 11-20	17	18	18
Total	35	151	35

Table 21. Circuit Resilience Nevada Power Pole Replacement Budget - Capital

Nevada Power	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Inspections & Corrections - Circuit Resiliency	$ 3,525,126	$ 1,181,925	$ 1,161,276	$ 1,181,925

2.6. GRID RESILIENCE AND SYSTEM HARDENING

NV Energy and the electric industry more broadly have undergone a paradigm shift. Ongoing changes in the environment and the increasing prevalence of extreme weather events have demonstrated the need for a resilient electric system. Efforts required to ensure a safe and reliable system today are different from historical efforts to meet traditional industry safety and reliability standards. To mitigate against the impacts of catastrophic events, NV Energy proactively focuses on hardening and ruggedization programs as the power system faces more extreme and more frequent natural disaster events and the conditions of an aging system decline.

System hardening programs represent the greatest long-term mitigation opportunity. The sequencing and prioritization focus on locations that present the greatest risk. NDPP system hardening programs target a combination of projects and programs in the HTAs, using a combination of situational, conditional, and structural awareness. For northern Nevada, many of the same areas threatened by wildfire ignition and spread are also threatened by extreme winter storms. For southern Nevada, system hardening programs reduce risks in HTAs threatened by extreme wind, flooding events, and monsoons.

System hardening programs provide a durable reduction to the need for operational actions such as no-reclose or PSOM events. System hardening initiatives focus on infrastructure improvements to mitigate operational risks associated with natural disasters. No single system hardening program mitigates all natural disaster risks. Individual programs address different conditional factors, different circumstances, and different geographic areas. Programs and initiatives share the common objective of reducing overall natural disaster risk through a combination of improved design standards and ruggedized equipment.

System hardening programs specifically aim to prioritize projects that reduce the potential of a wildfire ignition event when it is dry or windy and also take into consideration risk Tiers and circuit performance. These programs are informed by operational practices, emergency operations, and other vulnerabilities in the HTAs, especially where dry, or windy conditions pose the greatest risk for natural disaster impacts.

2.6.1. SYSTEM HARDENING STRATEGY

System hardening programs continuously drive down risk from natural disasters over the longer term, complementing other shorter-term initiatives such as operational practices and taking into account situational and conditional information. Industry standards clearly define electrical equipment types that present risk of utility-caused ignition, even under normal operating conditions. Some examples are bare conductor and expulsion fuses that cause sparks.

Specific projects and programs identify system improvements necessary to address natural disaster impacts on the overhead electric system. Two cycles of circuit patrols and detailed inspections were completed in Wildfire Tiers and southern Nevada's worst performing circuits as part of the Circuit Resilience Program. These inspections provided NV Energy with detailed understanding of equipment conditions in HTAs. The addition of an on-staff fire specialist and meteorologist specializing in fire behavior provided NV Energy with additional expertise and knowledge about the increased HTA risks.

Throughout 2022, NV Energy evaluated the effectiveness of risk reduction system hardening efforts, seeking opportunities to improve future risk mitigation initiatives that were exclusively focused on Tier 3. Project types, locations, timing, and cost were assessed to increase overall efficiency and effectiveness. Significant challenges were identified in areas where risk reduction activities are narrowly focused due to short seasonal construction windows, as is commonly found in Tier 3. The Companies found that the system hardening program cost profile can be improved through levelizing system hardening work across some Tier areas and throughout a calendar work cycle. The inaugural NDPP Second Amendment Docket No. 22-08001 approved some circuit evaluation and first phase design and permitting for circuits intended for

this use. Segments of those circuits are presented in this plan to execute a broader work cycle that levelizes risk reduction system hardening activities across the Tier 3 boundary and into lower Tiers located along the Sierra Mountain Range.

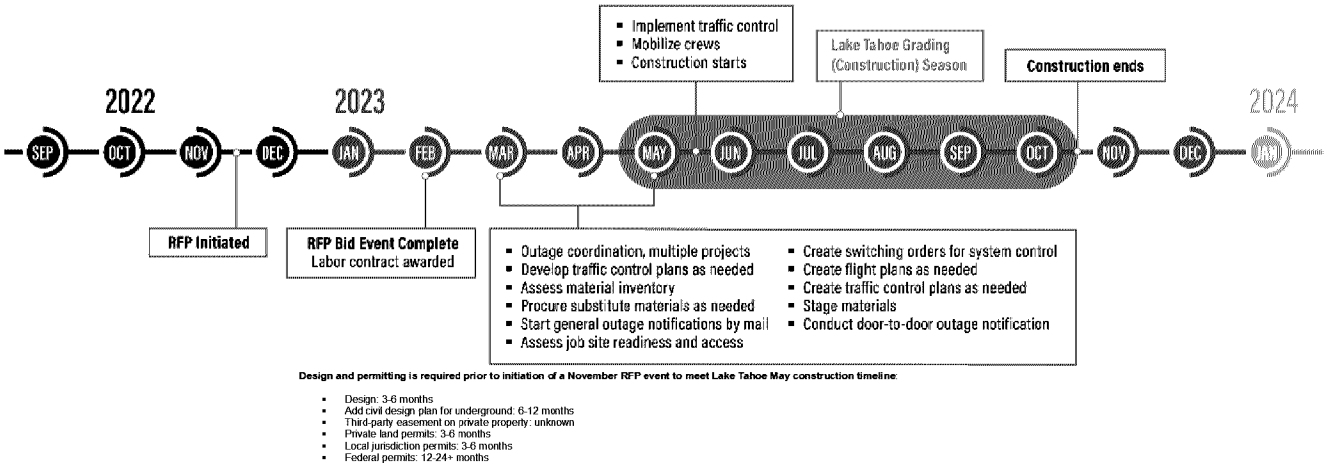
During the period of the inaugural plan, increased costs were incurred for seasonal mobilization based on a "work starts" and "work stops." The industry has concluded that significant additional costs are embedded within projects that require seasonal mobilization with long duration work stoppage. Actual costs to mobilize contract resources for the 2022 Lake Tahoe season were at least $1,000,000 and 35% of the cost of each unique project was attributable to remobilization of contract resources to perform single asset replacement projects, rather than a broader programmatic approach, across many noncontiguous sites, and in different Tier levels. These projects include trip savers, single pole replacements, and short segments of copper wire replacement.

During 2021, several capital projects entirely missed the narrow construction window due to permitting timelines that extended project critical paths by only weeks, delaying key risk reduction initiatives to the following year and creating significant work surplus in the next narrow seasonal work window. In addition, the volume of 2022 risk reduction work performed in the Basin had a significant impact to communities due to the high volume of planned system outages required to perform work.

A patchwork approach to NDPP projects impacts local communities, resulting in customer complaints, including from major account customers who are hit hardest by seasonal impacts. Grid hardening projects may also require worker safety outages. Some Tier 3 areas, including Lake Tahoe, and Mt. Charleston, are limited in their ability to transfer to an alternate electric feed, leaving customers subject to more planned system outages then would be typical. Continuous and systematic work in one geographic location, but planned across tiers, can significantly reduce both project costs and customer impacts.

NV Energy proposes a programmatic approach for the Grid Hardening Program, where project scopes are set in motion 2-3 years in advance. Preparing a portfolio of "shovel ready" projects, coordinated with critical external stakeholders and communities, reflects a significant improvement, and industry best practice. Implementing the program across HTAs allows risk mitigation work to continue in areas with less complex permitting in a continuous workflow. Specifically, risk mitigation activities could alternate among Tier 3 and Tier 2 circuits, including those identified for rebuild. Figure 49 shows a typical narrow timeline for seasonal construction in the Basin. Similar seasonal constraints exist in other regions such as Mt. Charleston.

Figure 49. Lake Tahoe Season Construction Timeline



Based on an accumulation of identified corrections from the inspections program, NV Energy may identify an overhead rebuild where it is more cost beneficial than asset replacement. Rebuilds focus primarily on Tiers 3 and 2 using covered conductor. There are synergies with the vegetation management programs that can also be captured as part of a comprehensive approach to achieve a year-round risk reduction strategy. Improved efficiencies can be gained across circuits or segments with chronic corrections or that are identified for multiple NDPP actions (e.g., pole replacements, copper wire removal, fuse replacement, and/or identified by fire agencies for undergrounding).

Certain circuits were identified for rebuild through the collaborative prioritization process with public safety partners. NV Energy has identified additional segments on the same circuits for selective undergrounding to reduce public impacts of safety outages and expedite completion on targeted critical Tier 3 circuits and segments:

- Incline 4100
- Round Hill 1502
- Muller 1295

Additional high-risk circuits and segments were identified along the eastern front of the Sierra Mountain Range where fires have previously occurred. These circuits exist in Tier 2 and a small portion of Tier 1E where downslope windstorms are typical. Southwesterly winds aloft are pushed down the slopes of the eastern Sierra/Carson Range. Under the right atmospheric conditions, these winds accelerate as they hit the foothills and can bring damaging wind gusts of greater than 60 mph. These windstorms happen annually and can coincide with periods of prolonged dry weather. The typical wind direction under these windstorms is from the West to Southwest. Any fire that starts under these extreme westerly or southwesterly winds can explode in size in a matter of minutes, exhibiting extreme fire behavior with rapid rates of speed, moving quickly into neighborhoods, and businesses. In recent years, 2020-2022, weather stations in this area have seen very severe level windstorms, and at a greater frequency since 2020. These circuits and segments also host less complex permitting requirements and are excellent candidates for rebuild because they will be constructed in months between October and May each year, thereby utilizing the balance of the calendar year from off-season Tier 3 construction.

- Curry 1280
- Muller 1295

Year-round system hardening efforts in this Plan seek to realize the full potential of the NDPP's risk reduction efforts. Focus continues in Tier 3, however the ability to efficiently coordinate work on targeted circuits to address accumulated corrections, fuse replacements, and remove bare wire from other high-risk fire zones using holistic planning and engineering to accommodate hardened poles and wires greatly improves efficiency and effectiveness.

Undergrounding efforts will continue as approved. The total undergrounding proposal for 2024 – 2026 addresses 20 of the 32 circuit segments identified though collaboration with fire agencies in the NDPP Selective Underground Prioritization Plan. Most of these undergrounding efforts will extend beyond 2026. Within this Triennial Plan, excavation, and installation of conduit systems will be the dominant phase of undergrounding projects.

Table 22 below lists the system hardening capital budget for this Triennial Plan.

Table 22. System Hardening Capital

Capital	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
System Hardening	**$ 154,093,947**	**$ 56,846,482**	**$ 53,173,321**	**$ 44,074,144**
Nevada Power	**$ 37,714,645**	**$ 11,667,704**	**$ 13,979,360**	**$ 12,067,581**
Copper Wire Replacement	$ 8,945,067	$ 3,740,585	$ 2,557,485	$ 2,646,997
Grid Ruggedization - Critical Crossings	$ 7,075,176	$ 2,222,019	$ 2,433,810	$ 2,419,347
Grid Ruggedization - Pole Stoppers	$ 3,883,200	$ 1,250,000	$ 1,294,000	$ 1,339,200
Line Rebuild - Mt Charleston	$ 15,906,102	$ 2,750,000	$ 7,594,065	$ 5,562,037
Undergrounding - Angel Peak	$ 1,905,100	$ 1,705,100	$ 100,000	$ 100,000
Sierra	**$ 116,379,301**	**$ 45,178,777**	**$ 39,193,962**	**$ 32,006,562**
Copper Wire Replacement	$ 10,379,675	$ 4,356,147	$ 4,148,528	$ 1,875,000
Expulsion Fuse Replacements - Tier 1E	$ 6,034,234	$ 1,535,760	$ 2,036,780	$ 2,461,694
Expulsion Fuse Replacements - Tier 2	$ 6,792,357	$ 2,228,588	$ 3,232,012	$ 1,331,757
Expulsion Fuse Replacements - Tier 3	$ 62,207	$ 62,207		
Line Rebuild - Chimney Peak #201	$ 3,707,360	$ 244,975	$ 1,451,709	$ 2,010,676
Line Rebuild - Curry 1280	$ 2,800,000		$ 1,400,000	$ 1,400,000
Line Rebuild - Incline 4100	$ 5,250,000	$ 3,375,000	$ 1,875,000	
Line Rebuild - Muller 1295	$ 4,527,524	$ 1,527,524	$ 1,500,000	$ 1,500,000
Reclosers - PSOM	$ 2,900,000	$ 2,900,000		
Substation Hardening - Glenbrook Substation	$ 8,379,764	$ 1,244,521	$ 3,722,715	$ 3,412,528
Substation Hardening - Barrier Walls	$ 978,293	$ 978,293		
Substation Hardening - Interior	$ 5,053,742	$ 2,744,117	$ 753,137	$ 1,556,489
Tree Attachment Removals	$ 6,367,254	$ 2,060,000	$ 2,121,800	$ 2,185,454
Undergrounding - Cost Share Glenbrook Phase	$ 2,400,000	$ 2,400,000		
Undergrounding - Heybourne 1288, Incline 4100/4200/4300, Muller 1295, Zephyr Cove	$ 37,402,002	$ 11,607,756	$ 13,291,281	$ 12,502,965
Undergrounding - Selective 2 and 4 miles	$ 13,344,889	$ 7,913,889	$ 3,661,000	$ 1,770,000

2.6.2. DESIGN AND CONSTRUCTION STANDARDS

NV Energy developed the *Application Standard - NDPP Distribution Line Construction* for new construction in areas of elevated fire risk. System hardening for the NDPP applies updated resilient construction standards to harden against natural disaster risk. NV Energy advocates for changes to local jurisdictional construction codes and ordinances to include certain risk mitigation elements, such as undergrounding for new construction in high-risk areas. System hardening referenced in this Plan is focused on specific programs to make existing facilities more resistant to wildfire and other natural disasters. The risk reduction program prioritizes facilities located in HTAs with known legacy equipment and designs that are more susceptible to fault or failure in response to severe weather conditions. The Companies participate in data and information sharing collaboratives to leverage broader industry knowledge and experience.

NV Energy standards are being updated to reflect new specifications for covered conductor and fire mesh application. For example, resilient overhead distribution standards prohibit installation of bare wire, expulsion fuses, and wood poles without fire mesh wrap in the highest wildfire risk areas. Informed by industry practices and as a result of the 2022 covered conductor pilot projects, covered conductor “tree wire” has been established as the standard for overhead construction in HTAs. Tree wire is the preferred

technology for resilient overhead rebuild projects. Ductile iron poles are the standard for hardening where installation is possible. When installation of non-wood poles is not feasible, fire mesh pole wrap has been added for standard new wood pole installations in Tier 3. As a result of the 2021 and 2022 tests and pilot programs for multiple fire mesh products, fiberglass fire mesh has presented as a preferred standard. Installation of covered conductor, non-expulsion fuses and non-wood poles (where possible) are now required for Tier 3 applications. A collaborative meeting of internal stakeholders is required as part of the predesign process to determine adequate fire mitigation in the design and scope for certain HTAs. Tier 2 and Tier 1E locations along the eastern front of the Sierra Nevada mountain range require resilient fire mitigation design. Southern Nevada's high-risk monsoon areas are hardened with pole stoppers and structural ruggedization at critical crossings.

2.6.3. SHARED CAPITAL INVESTMENT – SYSTEM HARDENING

NV Energy evaluated capital system hardening projects with the objective of transitioning, partially or fully, NDPP risk mitigation revenue requirements to a general rate recovery mechanism over time. NDPP costs are currently recovered through the NDPP regulatory asset mechanism. With this Plan, NV Energy is proposing to transition to recovering certain projects costs presented through the NDPP in future GRCs. Associated key actions of a possible transition include:

- Developing a plan to transition certain NDPP capital system hardening projects and programs costs, in full or in part, to the GRC;
- Assessing capital system hardening projects to determine a rubric for classifying project costs as GRC or NDPP
- Maintaining adequate oversight and management of all NDPP projects based on public safety and quantifiable risk reduction. Projects classified for cost recovery under GRC that remain within oversight of the Plan are referred to as NDPP-GRC
- Managing coordinated scheduling and sequenced workflow for both NDPP and NDPP-GRC projects to capture synergies of project interdependencies to reduce overall costs and system outage impacts
- Maintaining transparency for all NDPP projects, regardless of the recovery mechanism, through the annual September 1 update and March 1 regulatory asset recovery filing based on an established cadence

The proposed cost sharing classification approach will be based on the accrued benefits of the work, whether more heavily benefiting a core NDPP element or more suited to general rate recovery. A GRC classification does not reflect a change in any risks identified through the Plan's Risk Assessment. Although all projects provide safety and reliability benefits, this assessment seeks to recognize the proportionally weighted benefits. Table 23 shows high-level considerations for the proposed classification.

Table 23. Shared Capital Investment Classifications

System Hardening	Discussion	NDPP	NDPP-GRC
Selective Underground Segment Prioritization	Ranked and recommended for undergrounding by fire agencies – fire risk	X	
Cost Sharing Undergrounding	The current cost sharing project scopes (segments) are within the Selective Underground Segment Prioritization Plan so same consideration applies as above – fire risk	X	
Expulsion Fuse Replacement	Specific to higher Wildfire Risk Tiers. Traditional expulsion fuses are still standard in Tier 1 and non-fire HTAs – fire risk	X	
Mt. Rose 210	Ready for construction prior to 2024 therefore irrelevant for this assessment. Construction will commence under GRC classification		X
Tree Attachments	Violates vegetation clearance with added risk in drying conditions – fire risk	X	
Chimney Peak Rebuild	Prior justification was based on reliability not resilience or ruggedization - reliability		X
Substation Barrier Hardening	Resilience – hardening materials specific to ignition risk - fire risk	X	
Mt. Charleston Overhead and Underground Rebuild	Proposed Tier 3 segments (5 miles) identified by fire agencies in the Selective Underground Segment Prioritization Plan – fire risk	X	
Mt. Charleston Overhead and Underground Rebuild	Proposed new 1201 circuit from Northwest substation to Kyle Canyon is Tier 1 (13.5 miles) undergrounding not related to fire risk		X
Critical Crossings	Ruggedization/Resilience – monsoon	X	
Pole Stoppers	Ruggedization/Resilience – monsoon	X	
Pole Replacements	Vintage age less than 70% of useful life	X	
Pole Replacements	Vintage age greater than 70% of useful life		X
Copper wire replacement SPPC	SPPC baseline 47 miles identified through NDPP as extreme public safety risk and fire risk	X	
Copper wire replacement SPPC	SPPC copper wire identified beyond baseline 47 miles		X
Copper wire replacement NPC	Ruggedization/Resilience – monsoon	X	
Incline 4100 Overhead Rebuild	Ruggedization/Resilience high number of poles and corrections in highest Wildfire Risk Tiers in the same areas identified by fire agencies – fire risk	X	
Overhead rebuilds	Tier 2 projects along the Sierra Nevada Mountain range, minimum required to maintain year-round risk removal work – this "bundle" of projects interacts with NDPP seasonal work to reduce significant remobilization costs and dynamic contract costs. Segments are selected by risk level, geographic proximity to NDPP work and only permitting that works with other NDPP projects	X	X

Table 24. NDPP – GRC Capital Investment Amounts

NVE - Capital - GRC	Total GRC	2024 GRC	2025 GRC	2026 GRC
NPC	**33,304,930**	**4,349,822**	**13,103,396**	**15,851,712**
Inspections & Corrections	**3,600,000**	**1,500,000**	**600,000**	**1,500,000**
Circuit Resiliency	3,600,000	1,500,000	600,000	1,500,000
System Hardening	**29,704,930**	**2,849,822**	**12,503,396**	**14,351,712**
Line Rebuild - Distribution	29,704,930	2,849,822	12,503,396	14,351,712
SPPC	**59,280,755**	**12,997,500**	**17,261,148**	**29,022,107**
Inspections & Corrections	**36,891,255**	**2,000,000**	**12,591,148**	**22,300,107**
Pole Replacements	36,891,255	2,000,000	12,591,148	22,300,107
System Hardening	**22,389,500**	**10,997,500**	**4,670,000**	**6,722,000**
Copper Wire	3,622,500	3,622,500	-	-
Line Rebuild - Distribution	18,767,000	7,375,000	4,670,000	6,722,000
Grand Total	**92,585,685**	**17,347,322**	**30,364,544**	**44,873,819**

NVE - Capital - NDPP	Total NDPP	2024 NDPP	2025 NDPP	2026 NDPP
NPC	**43,493,163**	**13,261,534**	**15,977,636**	**14,253,993**
Inspections & Corrections	**5,353,840**	**1,456,676**	**1,856,784**	**2,040,380**
Circuit Resiliency	3,525,126	1,181,925	1,161,276	1,181,925
Pole Replacements	1,828,714	274,751	695,508	858,455
Risk Based Approach	**35,467**	**11,854**	**11,807**	**11,807**
Resource Sufficiency	35,467	11,854	11,807	11,807
Situational Awareness	**389,211**	**125,300**	**129,686**	**134,225**
Wildfire Cameras	389,211	125,300	129,686	134,225
System Hardening	**37,714,645**	**11,667,704**	**13,979,360**	**12,067,581**
Copper Wire	8,945,067	3,740,585	2,557,485	2,646,997
Line Rebuilds - Distribution	15,906,102	2,750,000	7,594,065	5,562,037
Lines Ruggedization	10,958,376	3,472,019	3,727,810	3,758,547
Undergrounding	1,905,100	1,705,100	100,000	100,000
SPPC	**127,604,943**	**48,262,078**	**43,670,386**	**35,672,479**
Inspections & Corrections	**9,764,401**	**2,616,201**	**3,989,534**	**3,158,666**
Pole Replacements	9,764,401	2,616,201	3,989,534	3,158,666
Risk Based Approach	**10,323**		**3,441**	**6,882**
Resource Sufficiency	10,323		3,441	6,882
Situational Awareness	**1,450,918**	**467,100**	**483,449**	**500,369**
Wildfire Cameras	1,450,918	467,100	483,449	500,369
System Hardening	**116,379,301**	**45,178,777**	**39,193,962**	**32,006,562**
Copper Wire	10,379,675	4,356,147	4,148,528	1,875,000
Line Rebuilds - Distribution	12,577,524	4,902,524	4,775,000	2,900,000
Line Rebuilds - Transmission	3,707,360	244,975	1,451,709	2,010,676
Non-Expulsion Fuses	12,888,798	3,826,555	5,268,792	3,793,451
Reclosers	2,900,000	2,900,000		
Substation Hardening	14,411,799	4,966,931	4,475,851	4,969,017
Tree Attachment Removals	6,367,254	2,060,000	2,121,800	2,185,454
Undergrounding	53,146,891	21,921,645	16,952,281	14,272,965
Total	**171,098,107**	**61,523,613**	**59,648,022**	**49,926,472**

2.6.4. UNDERGROUNDING STRATEGY

The NDPP undergrounding initiatives mitigate risks associated with the Companies' overhead distribution system in HTAs. Undergrounding is frequently the most effective design to reduce the risk of equipment-related ignition or infrastructure impacts from other natural disaster events. The cost and operational constraints of underground construction make it difficult to apply on a widespread basis. Undergrounding circuits also does not completely eliminate the possibility of ignition, primarily because of above ground junctions. Therefore, undergrounding is evaluated carefully, and reserved for the highest risk areas.

NDPP Selective Underground Prioritization Plan.
The 2020 inaugural NDPP directed the Companies to collaborate with local fire agencies to develop the NDPP Selective Underground Prioritization Plan. The results of the collaboration are presented in Appendix J The plan is comprised of 32 distribution circuit segments identified by local fire protection districts using fire industry criteria. Segments were ranked based on a weighted risk score assessment completed by fire, electric operations, and distribution design personnel to determine risk, constructability, maintenance accessibility and estimated cost (order of magnitude). Since 2021, project ranking, and segment lengths have been revised, updated, and communicated to stakeholders as new information becomes available. The NDPP Selective Underground Prioritization Plan identifies approximately 80 total miles of Tier 3 underground circuits. The Plan excludes VC Highlands which is currently designated as Tier 2 and proposed for reclassification as Tier 3. Tier 3 classification of VC Highlands will make it a candidate for the NDPP Selective Underground Prioritization Plan.

Characteristics of Tier 3 Undergrounding.
Lead times for undergrounding projects are long, compounded by additional permit requirements, extensive excavation, and conduit system installation before actual relocation of the overhead lines begins. Risk is still present during the relocation of high-risk sections. During the construction period, controllable risk is managed through patrols, inspections, corrections, and vegetation management programs outlined earlier in this Plan.

Undergrounding project estimates in this Plan are based on current market estimates with added contingency factors. The costs of NDPP undergrounding projects scheduled for civil construction in 2023 will inform future undergrounding estimates. Estimates will be refined as geological assessments and subsurface survey's expose subsurface conditions for the various recommended undergrounding locations at Lake Tahoe, situated on a composition of dense granite, and Mt. Charleston, situated on a mix of granite and limestone.

In some cases, segments identified for undergrounding were also identified as having copper wire. Replacement with overhead covered conductor has occurred, after conditional assessment of the wire and structures and including the appropriate fire district personnel. Those segments are noted on the Selective Underground Prioritization Plan.

Updates for NDPP approved undergrounding projects are presented here with recommended activities. Generally, project status phases are referenced as:

- Design/Permit
- Civil/Substructure
- Lines Construction

Segments proposed for this Plan are grouped into five tables based on the sequence from prior NDPP approvals and project interdependencies. Reference to specific dockets and the respective approval of work is noted in each table using the project statuses referenced above.

Each Sierra grouping is referred to as a "Phase" of the NDPP Selective Underground Prioritization Plan. Three phases are represented for Sierra. Each circuit segment within a phase is noted with its corresponding priority ranking from the NDPP Selective Underground Prioritization Plan. Cost Sharing and Mt. Charleston segments are uniquely grouped.

Each grouping includes the scope of work recommended for 2024 through 2026, although completion is contingent on permitting, labor, and material resources. Very few of the NDPP Selective Underground Prioritization Plan segments referenced in this Plan will be completed in entirety by 2026. The extensive number of surveys, civil plans, profiles and other civil factors required to be completed as part of the underground permitting process extend the timeline for the various segments. Notes are added for each segment where the total scope extends beyond the life of this Plan and any additional work required to complete the segment beyond this Plan will be presented for consideration in a future filing.

Fire agencies identified high-risk conditions within Tier 3 areas in the Basin. The agencies, Tahoe Douglas Fire Protection District, Carson City Fire Department, North Lake Tahoe Fire Protection District, and East Fork Fire Protection District, identified the following high-risk conditions associated with NV Energy's electric distribution lines situated close to densely populated communities: risk to water sources; age and condition of the system; and the limited emergency routes for the local population and the significant tourist population that visits Lake Tahoe each year from around the world.

Sierra Phase 1 Undergrounding

Priority Rank 1, 2, 10, 12, 17

Table 25. Sierra Phase 1 Undergrounding Projects

NDPP Phase	Priroity Rank	Service Terriroty	Title	Length in miles	Map Reference	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP	Cost Recovery NDPP-GRC	Scope Extends Beyond 2026*
PH 1 2 and 4 Miles	1	SPPC	Curry 1280	0.5	F1	20-02031/ 20-02032 and 22-08001	Design/Permit and start Civil Construction	Continue Civil Construction and start Lines Construction	NDPP	No	No
	2	SPPC	Downs 1285	1.8	F2						Yes
	10	SPPC	Roundhill 1504	0.53	F3						No
	12	SPPC	Incline 4200 Phase 3	0.7	F4						Yes
	17	SPPC	Incline 4300 Phase 3	2	F5						No
			Total Miles	**5.53**			*timeline based on permits, material and labor availability				

The inaugural NDPP directed NV Energy to initiate design and permitting of undergrounding in parallel to the development of the NDPP Selective Underground Prioritization Plan. The directive was to initiate the first two miles and then another four miles of undergrounding, a total of six miles. Five separate line segments were chosen to make up the first six miles. To date, this initial grouping of projects has been referred to in dockets and testimony as the "two miles and four miles" because that reference originated in the inaugural order. To establish consistent titling of underground going forward, this group of projects is now referred to as Sierra Phase 1 because it is the first phase of undergrounding under the NDPP, and it resides in Sierra's service territory. Sierra's Phase 1 totals 5.53 miles, not six miles as previously estimated. The projects are divided among south shore and north shore Lake Tahoe and along the eastern front of the Sierra Mountain Range near Carson Valley (reference maps included in Appendix F). Civil construction initiated in 2023 will extend through 2026, followed by completion of the conduit system. Lines construction will begin for all five segments in 2023. It is anticipated Curry 1280 (1), Round Hill 1504 (12) and Incline 4300 Phase 3 (17) construction will be complete by 2026, contingent upon resource, and material availability. Table 26 represents estimated costs for the 2024 through 2026 work in Sierra Phase 1. See map reference in index.

Table 26. Sierra Phase 1 Undergrounding Funding (Two Miles and Four Miles)

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Undergrounding - Selective 2 and 4 miles	$ 13,344,889	$ 7,913,889	$ 3,661,000	$ 1,770,000

Sierra Phase 2 Undergrounding

Priority Rank 4, 5, 6

Table 27. Sierra Phase 2 Undergrounding Projects

NDPP Phase	Priroity Rank	Service Terriroty	Title	Length in miles	Map Reference	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP	Cost Recovery NDPP-GRC	Scope Extends Beyond 2026*
PH 2 Next 3 Segments	4	SPPC	Incline 4300 Phase 1	1.72	F6	22-08001	Design/Permit	(start) Civil/Substructure	NDPP	No	Yes
	5	SPPC	Incline 4300 Phase 4	0.47	F7						Yes
	6	SPPC	Heybourne 1288	3.74	F8						Yes
			Total Miles	**5.93**		*timeline based on permits, material and labor availability					

Sierra Phase 2 undergrounding is comprised of the line segments that received Priority Rank 4, 5, and 6 which were approved for design and permitting during 2023. These segments represent approximately 5.93 miles of undergrounding divided between north shore and south shore Lake Tahoe, and along the eastern front of the Sierra Mountain Range near Carson Valley. The NDPP anticipates performing civil construction and installation of the conduit system for these segments. It is anticipated the construction for the three of these segments, Incline 4100 Phase 1 (4), Incline 4300 Phase 4 (5) and Heybourne 1288 (6) will extend beyond 2026. Table 28 represents estimated costs for the 2024 through 2026 work on Phases 2 and 3. See map reference for index.

Sierra Phase 3 Undergrounding

Priority Rank: 7, 8, 9, 14, 16

Table 28. Sierra Phase 3 Undergrounding Projects

NDPP Phase	Priroity Rank	Service Terriroty	Title	Length in miles	Map Reference	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP	Cost Recovery NDPP-GRC	Scope Extends Beyond 2026*
PH 3 Next 5 Segments	7	SPPC	Muller 1295	10.8	F9	NA	NA	Design/Permit and (start) Civil/Substructure	NDPP	NO	Yes
	8	SPPC	Incline 4200 Phase 1	4.84	F10						Yes
	9	SPPC	Incline 4200 Phase 2	2.38	F11						Yes
	14	SPPC	Incline 4100 Phase 2	1.73	F12						Yes
	16	SPPC	Incline 4200 Phase 4	0.91	F13						Yes
			Total Miles	**20.66**			*timeline based on permits, material and labor availability				

Sierra Phase 3 undergrounding is comprised of Priority Rank 7, 8, 9, 14, and 16, representing approximately 20.66 miles of undergrounding. These segments require extensive permitting anticipated to span 1.5 years to 2.5 years. The NDPP recommends completing design and permitting 2024 through 2026, anticipating commencement of civil construction 2025, continuing through 2026. Civil construction will extend beyond 2026 for these segments Muller 1295 (7), Incline 4200 Phase 1 (8), Incline 4200 Phase 2 (9), Incline 4200 Phase 2 (14) and Incline 4200 Phase 4 (16). Table 29 represents estimated costs for 2024 through 2026 work on Phase 2 and Phase 3.

Table 29. Sierra Phase 2 and Phase 3 Undergrounding Funding

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Undergrounding - Heybourne 1288, Incline 4100/4200/4300, Muller 1295	$ 32,602,002	$ 11,607,756	$ 10,891,281	$ 10,102,965

Sierra Cost Sharing Undergrounding

Priority Rank: 19, 17, 26, 30, 32

Table 30. Sierra Undergrounding Phase 3 Cost Sharing

NDPP Phase	Priroity Rank	Service Terriroty	Title	Length in miles	Map Reference	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP	Cost Recovery NDPP-GRC	Scope Extends Beyond 2026*
Cost Sharing	19	SPPC	Incline 4100 Phase 3	1.1	F14	20-02031/ 20-02032	Seek Cost Sharing	Fund Lines Construction	NDPP	No	Yes
	17	SPPC	Glenbrook 2302 Ph 1	3.4	F15	22-08001	Cost Share	Adjust Credit			No
	26	SPPC	Glenbrook 2302 Ph 4	0.75	F16	None	No Prior Approval	Fund Lines Construction			No
	30	SPPC	Glenbrook 2505 Ph 1	1.14	F17	22-08001	Cost Share	Adjust Credit			No
	32	SPPC	Glenbrook 2505 Ph 2	0.74	F18	22-08001		Fund Credit			Yes
			Total Miles	**7.13**			*timeline based on permits, material and labor availability				

Glenbrook Undergrounding Incorporated

Priority Rank: 17, 30, and 32

NV Energy requests to adjust the undergrounding credit estimated for Priority Rank 17, 30, and 32 attributable to Glenbrook Undergrounding, Inc. NV Energy followed the Rule 9 Line Extension Agreement ("LEA") process because no other agreements were appropriate to guide responsibilities related to the NDPP cost sharing partnership. NV Energy's designs and estimates are 90% complete for each of the three segments. Civil construction for Priority Rank 17 and 30 are anticipated to be initiated in 2023. The PUCN approved an estimated credit amount for these two sections of Glenbrook Undergrounding.

Segment 32 is anticipated for a Rule 9 LEA in 2024. Table 31 represents the estimated credit. NV Energy seeks to adjust the credits based on actual material and labor costs, which will be indexed the average of all actual covered conductor construction costs for work in the Tier 3 Lake Tahoe area.

Table 31. Glenbrook Undergrounding Incorporated Phase 3 Cost Sharing Funding Request

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Undergrounding - Cost Share Glenbrook	$2,400,000	$2,400,000		

Tahoe Transportation District ("TTD")

Priority Rank: 19

The TTD anticipates moving forward with one mile of undergrounding utilizing the partnership approved in the Second Modified Final Order in Docket Nos. 20-02031 and 20-02032. The segment is located near the Thunderbird Lodge extending south near Secret Harbor. TTD commits to all environmental permitting and testing requirements and proposes that NV Energy provide and install all civil construction, substructure system, and underground the existing overhead segment. Civil construction is planned for the third quarter

of 2025. Table 32 represents costs to perform design, civil construction, substructure installation, and lines construction for this segment.

Table 32. TTD Cost Sharing Funding Request

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Undergrounding - Cost Share TTD Bike Path	$2,600,000		$ 1,255,000	$ 1,345,000

Lake Tahoe Basin Management Unit ("LTBMU") – Zephyr Cove Undergrounding

Priority Rank: 26

The LTBMU of the United States Department of Agriculture, Forest Service have expressed interest in participating in a cost sharing partnership to underground sections of Glenbrook 2302 and Round Hill 1504 distribution circuits located at Zephyr Cove Resort located at Lake Tahoe's south shore. The sections are comprised of roughly one mile. Three-quarters of a mile was previously identified by the Tahoe Douglas Fire District as high risk and recommended for undergrounding within the NDPP Selective Underground Prioritization Plan. This segment is represented as Priority Rank 26. The proposed partnership assumes the Forest Service takes responsibility for civil design, permitting assistance for USFS permits, civil excavation, purchase and installation of substructure, and pavement restoration where necessary. NV Energy's responsibility tentatively includes acquisition of the remaining permits, purchase, and performance of all construction for the lines. This delineation of responsibilities is like the partnership between NV Energy and TTD's east shore bike path cost sharing partnership. Table 33 represents costs to perform the work for this segment.

Table 33. Zephyr Cove Resort Underground Cost Sharing Funding Request

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Undergrounding - Cost Share Zephyr Cove	$2,200,000		$ 1,145,000	$ 1,055,000

Mt. Charleston Undergrounding

Priority Rank: 3, 13, 15, 25

Table 34. Mt. Charleston Rebuild Undergrounding

NDPP Phase	Priroity Rank	Service Terriroty	Title	Length in miles	Map Reference	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP	Cost Recovery NDPP-GRC	Scope Extends Beyond 2026*
Mt. Charleston	3	NPC	Angel Peak 401	0.16	F19	20-02031/ 20-02032	Design/Permit/Construction	(complete) Civil/Substructure/ Lines Construction	NDPP	No	No
			Angel Peak 402							No	
			Angel Peak 403	0.48						No	
	13	NPC	Kyle Canyon 1201	7.3	F20	NA	NA	Design/Permit	NDPP	No	Yes
	15	NPC	Canyon 3401	0.96	F21						
	23	NPC	Angel Peak 3402	7.6	F22						
	NA **	NPC	NW1215 to KC1201	13.5	F23	22-08001	Design/Permit	Permit/CivilConstruction	No	NDPP-GRC**	No
	NA **	NPC	NW1215 to KC1201	5					Yes	No	
			Total Miles	**35**			** Scope and funding requested in System Hardening Rebuilds				
							*timeline based on permits, material and labor availability				

Mt. Charleston and Kyle Canyon are in southern Nevada. NV Energy has identified portions of Mt. Charleston that can experience extreme conditions, most specifically in Tier 3. The USFS and Mt. Charleston Fire protection agencies also identify Mt. Charleston as high risk for fire resulting in a catastrophic event. Mt. Charleston's ranking in the NDPP Selective Underground Plan is due to environmental conditions combined with the lack of evacuation routes.

The Second Modified Final Order in Docket Nos. 20-02031 and 20-02032 approved undergrounding for select segments of Angel Peak. The Companies' proposed mitigation efforts for Mt. Charleston include converting approximately twenty miles of the total Mt. Charleston distribution system to a modern fire mitigation design. Approximately 5 miles of the distribution system is in Tier 3 and undergrounding will best comply with system hardening standards to significantly reduce the risks of extreme fire weather and minimize PSOM events. The Companies collaborated with state, federal, and local agencies to consider multiple options for Mt. Charleston fire mitigation construction routes.

Angel Peak 401, 402, and 403

Priority Ranking 3

The inaugural NDPP approved repairs and construction for Angel Peak 401, 402, and 403. Construction of these segments will commence in 2023 and the Companies anticipate that some work will extend into the next Triennial Plan window. NV Energy requests $1.9 M in the Plan to complete the Angel Peak circuits in the 2024 - 2026 NDPP, with most of the work completed by 2024.

The project consists of replacing approximately one-quarter mile of underground 4 kV conductor to modern 1/0 triplex 12 kV underground conductor along Angel Peak 401, repairing approximately eight above ground pole boxes due to deteriorating conditions along Angel Peak 402 and converting approximately one-half mile of overhead 4 kV conductor to modern 1/0 triplex 12 kV underground conductor along Angel Peak 403 on Mount Charleston in Tier 3. The existing 4 kV cable has deteriorated significantly leading to customer outages and will be replaced with modern 1/0 triplex 12 kV cable as part of this project. The existing above ground concrete pole boxes have eroded significantly leading to customer outages and will be replaced as part of this project. The existing overhead cable on Angel Peak 403 presents a wildfire risk during extreme wind events and will be converted to modern underground 1/0 triplex 12 kV cable as part of this project. The project also mitigates a potential risk from inrush current caused cable failure upon re-energization should a PSOM occur. Table 35 represents costs to perform the work for this segment during the Plan period. See map reference for index.

Table 35. Angel Peak 401, 402 & 403

Nevada Power	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Undergrounding - Angel Peak	$ 1,905,100	$ 1,705,100	$ 100,000	$ 100,000

Mt. Charleston Rebuild

Priority Ranking 13, 15, 23

Phase One: Northwest 1215 to Kyle Canyon Feeder Tie.
NV Energy assessed the configuration of the existing electric system serving Mt. Charleston and determined that, in addition to the Angel Peak improvements discussed above, a new distribution feeder should be built to serve the Kyle Canyon community from Northwest substation. The new distribution feeder, NW1215, enables the removal of the deteriorating Kyle Canyon substation and the Angel Peak 34 kV 3402 circuit to significantly reduce the fire risk associated with these vulnerable facilities. Furthermore, having a new power source for Kyle Canyon residents separate from Angel Peak would reduce the frequency of PSOM events for the Kyle Canyon. The estimated costs include the construction of the new NW1215 feeder tie with KC1201 located in Tier 3.

Phase Two: Ruggedize the Kyle Canyon 1201 Feeder.
Once the Northwest 1215 to Kyle Canyon Feeder Tie is complete, the Companies propose to bring the Kyle Canyon 1201 feeder up to wildfire ruggedized standards. The circuit would be rebuilt as underground

conductor or using tree wire covered conductor specifications, where deemed most applicable. NV Energy would use ductile iron structures for any overhead poles that are built within Tier 3 where accessibility to the pole with a NV Energy line truck is available. Poles in less accessible areas will be constructed using fire-wrapped wood poles. To begin this project, NV Energy is requesting funding for design and permitting for this feeder work.

Phase Three: Remove existing Kyle Canyon substation and Angel Peak 3402.
These removals complete the project by removing an obsolete substation and line segment. The Kyle Canyon 1201 feeder will now be fed from the newly connected Northwest 1215 feeder. The need for Kyle Canyon substation to convert 34.5 kV to 12 kV is no longer needed. Furthermore, the 34.5 kV line from Angel Peak substation to Kyle Canyon is no longer needed and will be removed to reduce the fire risk.

Phase Four: Canyon 3401 Rebuild.
Approximately one mile of Canyon 3401 is in Tier 3. The Companies propose to bring the Canyon 3401 line up to wildfire ruggedized standards and are requesting approval to initiate formal planning, design, and permitting.

In the Second Amendment, the Companies received approval to initiate formal planning and design of the first phases of the Mt. Charleston rebuild including civil engineering and permitting. In this Plan, the Companies are seeking approval for construction for phase one and design and permitting for phase two, phase three, and phase four of the Mt. Charleston rebuild, for a total 2024-2026 budget of $15,906,102. Table 36 represents costs to perform the work for this segment. See map reference for index.

Table 36. Mt. Charleston Rebuild

Nevada Power	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Line Rebuild - Mt Charleston	$ 15,906,102	$ 2,750,000	$ 7,594,065	$ 5,562,037

NDPP TIER 3 TOTAL UNDERGROUNDING
The Companies developed the Tier 3 Total Underground Plan, included as Appendix J, pursuant to Commission directive in the Second Modified Final Order in Docket Nos. 20-02031 and 20-02032. The Tier 3 Total Underground Plan is to provide an overview of the task to completely underground all remaining overhead distribution lines located in Tier 3. The plan provides a high-level, order of magnitude estimates of what it may take to completely underground Tier 3 overhead lines. The plan also details the benefits and the drawbacks of total undergrounding.

While undergrounding is considered to mitigate 90% to 95% of risk associated with equipment-caused ignition, it is not a practical application for all areas because it introduces new issues such as constructability and future maintenance issues in areas where utility lines are not accessible by vehicle. While undergrounding does present clear benefits, it is costly, and with extremely long lead times before benefits are realized. The Companies recommend following the existing approach to undergrounding by working collaboratively with fire agencies to assessing the best options for each identified circuit. As the Companies implement and learn to use advanced technology such as Technosylva data analytics, risk prioritization will be refined, further guiding investment strategies that drive risk reduction. The full Total Underground Plan is found in Appendix J.

2.6.5. OVERHEAD REBUILD STRATEGY

Overhead rebuilds are part of the overall risk reduction initiatives. The Overhead Distribution Rebuilds program includes a collection of projects and initiatives designed to ruggedize unhealthy or vulnerable

infrastructure, reduce the presence of equipment that can produce sparks that could be a source of ignition, and guard against the potential for cascading catastrophic failures.

2.6.5.1. COPPER WIRE REPLACEMENT PROGRAM

Effective distribution and transmission facility upgrades ruggedize the electric system and mitigate the impact of natural disasters. One initiative used to ruggedize the electric system is the copper wire replacement program in all HTAs. The copper wire replacement program replaces bare, aged copper wire that has become brittle and annealed over time. The replacement program entails reconductoring or rebuilding distribution infrastructure to reduce the risk of a wire-down event from compromised copper wire. The small sized copper wire is more likely to break during severe events, compared to large sized wire that is more durable. For fire HTA's, the Companies are replacing copper wires with a covered conductor solution. NV Energy typically experiences over 200 live wire-down events in Nevada each year. While rare, system protection devices may malfunction due to a high impedance or other faults that can result in energized conductor falling to the ground posing a serious risk to people and property.

The 2020 inaugural NDPP targeted the replacement of 47 miles of copper wire across northern Nevada Tier areas. Copper wire in wildfire HTAs is replaced with covered conductor. Copper wire in monsoon HTA's is replaced with bare aluminum conductor. The first grouping of copper wire was identified through NV Energy's GIS mapping system. This grouping of copper wire is referred to as Sierra's Baseline Copper Wire to delineate this group from additional findings of copper wire identified through the NDPP patrols and inspections program. During 2022, NV Energy replaced 5.87 miles of copper wire in Tier 3 Lake Tahoe. There are 13 miles of copper wire in northern Nevada presented in the Plan for replacement during the years 2024-2026, across Tiers 1E, 2, and 3, as shown in Table 37. Table 38 represents costs to perform the work for this project.

Table 37. Sierra Copper Wire Replacement

NDPP Reference	Tier Tier	Service Terriroty	Length in miles	Miles Complete 2023*	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP	Cost Recovery GRC	Scope Extends Beyond 2026*
Copper Wire Baseline 47 Miles	Tier 3	SPPC	8.6	5.87	20-02031/ 20-02032 22-08001	Tier 3 Construction and Tier 2, 1E Design/Permitting	Construct Approximately 13.5 Miles	2.25	2.91	Yes
	Tier 2		9.35					5.64		Yes
	Tier 1E		29.05					2.7		Yes
	Total		47	5.87				10.59	2.91	27.63

Table 38. Projected Costs for Sierra Copper Wire Projects

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Copper Wire Replacement	$ 10,379,675	$ 4,356,147	$ 4,148,528	$ 1,875,000

Through 2023, NV Energy is forecasted to have replaced 15.3 miles of small sized copper conductor in monsoon, thunderstorm, high wind and other HTAs in southern Nevada. For this Plan period, NV Energy recommends replacing the remaining 7.6 miles of copper wire in southern Nevada and performing an updated assessment of copper wire based on field verifications performed prior to 2024, as shown in Table 39. Table 40 represents costs to perform the work for this project.

Table 39. Nevada Power Copper Wire Replacement

	Priority Rank	Service Territory	Length in miles	Miles Complete 2023*	Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP	Cost Recovery GRC	Scope Extends Beyond 2026*
Copper Wire	Monsoon	NPC	22.9	15.3	20-02031/ 20-02032	Design/Permit Construction	(continue) Design/Permit Construction	7.6	No	No
	WUI/Tier 1	NPC	TBD	TBD				TBD		Yes

Table 40. Projected Costs for Nevada Power Copper Wire Projects

Nevada Power	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Copper Wire Replacement	$ 8,945,067	$ 3,740,585	$ 2,557,485	$ 2,646,997

As additional copper wire is identified through circuit patrols and detailed inspections, additional sections will be added to the copper wire replacement program. Funding for the design and construction of these projects will be requested in future NDPP updates.

2.6.5.2. NON-EXPULSION FUSE REPLACEMENT

There are three different types of fuses that are used to protect the overhead distribution system: conventional expulsion fuses, current limiting fuses, and electronic fuses. Conventional expulsion fuses are pole mounted devices that protect the distribution system from faulted or damaged lines and equipment. Conventional expulsion fuses release hot particles and gases, which can be an ignition source leading to wildfire. Current limiting fuses are used to protect sensitive equipment and expel no materials, limit the available fault current, and can reduce the duration of faults. More recently introduced, fast-responding electronic fuses do not expel hot particles and have similar protective characteristics as conventional expulsion fuses. The use of conventional expulsion fuses, current limiting fuses and electronic fuses provides for a high level of reliability and grid resilience with various pros and cons depending on which device is used. Historically, the Companies, and the industry more broadly, used conventional expulsion fuses to protect lines and equipment.

The 2020 NDPP and the First and Second Amendments included a program to replace conventional expulsion fuses with non-expulsion devices in Tier 3. The 2020 NDPP focused on first replacing expulsion fuses in Tier 3.

All lateral fuses and approximately two-thirds of riser pole fuses are being replaced with electronic fuses. All overhead transformers and the remaining one-third of riser pole fuses are being replaced with current limiting fuses. The specified replacement device depends on the existing fuse size and fuse coordination requirements. The electronic fuses are the S&C Electric “TripSaver.” The current limiting fuses are S&C Electric “Fault Tamer.” As new protection devices are installed, a comprehensive system protection study will guide how to harmonize the new devices on the system for proper operation. The replacement of the existing conventional expulsion fuses uses a mixture of Capital and OMAG programs.

As a continuation of the existing program, the Companies are requesting approval to begin the replacement of conventional expulsion fuses in Tier 1E and 2 beginning in 2024. Table 41 breaks down the expulsion

fuse replacement schedule for this Plan period. Tables 42 and 43 represent costs to perform the work for this project.

Table 41. Expulsion Fuse Replacement

NDPP Reference	Fire Tier	Service Territroty	Title	Total Expulsion Fuses	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Scope Extends Beyond 2026
Expulsion Fuse Replacements	Tier 3	SPPC	Capital - Electronic Fuse	46	20-02031 22-08001 20-02032	Replace expulsion fuses in Tier 3 area	Replacements of expulsion fuses Tier 2, Tier 1E	No
	Tier 2		Capital - Electronic Fuse	771				No
	Tier 1E		Capital - Electronic Fuse	596				Yes
	Tier 3		OMAG - Current Limiting	423				No
	Tier 2		OMAG - Current Limiting	2603				No
	Tier 1E		OMAG - Current Limiting	2134				Yes
			Total	**6573**				

Table 42. Expulsion Fuse Replacement Proposed Budget - OMAG

Sierra OMAG	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Expulsion Fuse Replacements	$ 8,776,514	$ 2,730,801	$ 2,719,306	$ 3,326,407
Tier 1E	$ 4,170,029	$ 625,469	$ 1,193,104	$ 2,351,456
Tier 2	$ 4,267,162	$ 1,766,009	$ 1,526,202	$ 974,951
Tier 3	$ 339,323	$ 339,323	$-	$-

Table 43. Expulsion Fuse Replacement Proposed Budget - Capital

Sierra Capital	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Expulsion Fuse Replacements	$ 12,888,798	$ 3,826,555	$ 5,268,792	$ 3,793,451
Tier 1E	$ 6,034,234	$ 1,535,760	$ 2,036,780	$ 2,461,694
Tier 2	$ 6,792,357	$ 2,228,588	$ 3,232,012	$ 1,331,757
Tier 3	$ 62,207	$ 62,207		

2.6.5.3. LINES RUGGEDIZATION PROGRAMS

While wildfire has been a key focus of the NDPP, the Companies' electric grid has also been impacted by other natural disasters such as monsoons. The Lines Ruggedization Program, identified in the original NDPP, includes a portfolio or programs to guard against widespread outages from other prevalent disasters and to reduce impacts of causing or perpetuating a wildfire. While a ruggedization initiative may be targeted at a unique natural disaster type, ruggedized infrastructure usually reduces risk across multiple types of natural disaster events.

During an emergency, it is critical that any electric grid infrastructure not impede first responders or compromise the general public's ability to evacuate from a natural disaster. NV Energy also must have access to restore power in an expedited manner should an outage occur. Pole damage can quickly cascade, bringing down multiple poles with compounding impacts. Replacing multiple poles further delays service restoration to critical facilities. To address these threats, the Companies have specific targeted investments:

Pole Stoppers - Replace every fifth to eighth wood tangent or suspension structure with higher class steel or ductile iron structures to increase the strength of the structures to better withstand and mitigate the impact

of a cascade failure during a natural disaster. In addition, transmission engineering recommended replacing every guyed wood dead-end structure with higher class steel or ductile iron structures to increase the strength of the structures. This will enable the structure to better withstand and mitigate the impact of a cascade failure during a natural disaster. Two pole stopper projects, Spring Mountain Tap of Arden – Jean 69 kV and Good Springs Tap of Arden – Jean 69 kV are in service. The remaining two pole stopper projects targeting the Equestrian – Mission 69 kV and Artesian – Lincoln 138 kV areas are pending design completion. Table 44 shows the status, including structures, which comprise the pole stopper program. The Companies recommend continuing the design, permitting, and construction for the two remaining pole stopper circuits, future identified guyed dead-end structures, which will be broken into individual projects based on related structure counts.

Table 44. NPC Pole Stopper Program

NDPP Reference		Service Territory	Total Structures	Total Complete 2023*	Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP	Cost Recovery GRC	Scope Extends Beyond 2026*
Pole Stoppers	Transmission	NPC	36	36	20-02031/ 20-02032	Design/Permit Construction	(continue) Design/Permit Construction	Direct. Embed	No	No
	Transmission	NPC	TBD	TBD				Foundation		Yes

Critical Crossings – Replacing specific wood poles adjacent to critical crossings, including highways, railroads, and at critical distribution, and transmission lines, with higher class steel or ductile iron structures to better withstand and mitigate the impact of poles and wire coming down across the critical crossing during a natural disaster. This project also minimizes the number of customers impacted by a PSOM event by adding load break isolation devices on the lines near the transition point between non-Tiered and Tiered areas. Thirty-five critical crossings have been identified for ruggedization. Designs have been completed for 20 distribution and 15 transmission critical crossings. Structures have been procured for 10 distribution and 15 transmission critical crossings. Permitting has been completed for 4 distribution and 3 transmission critical crossings. Construction is being scheduled for 3 distribution and 2 transmission critical crossings. One distribution and one transmission critical crossing project have been completed. Figure 50 below shows the status of the 35 critical crossings. The Companies recommend continuing design/engineering, permitting and construction on the remaining 33 critical crossing sites, which will be broken into individual projects based on related structure counts.

Figure 50. Critical Crossing Implementation Status

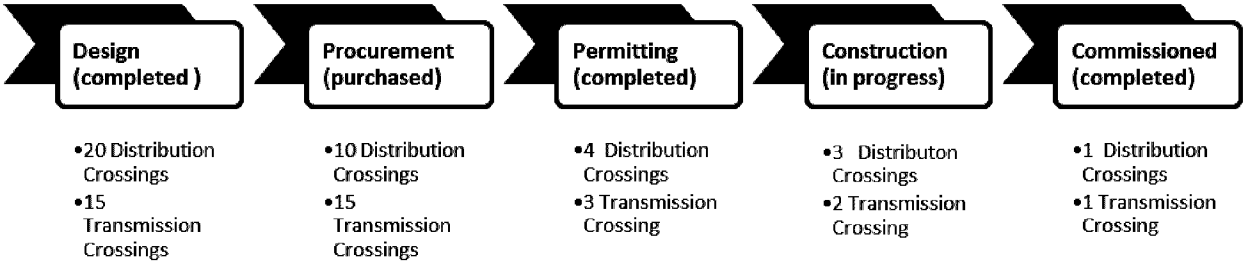


Table 45. NPC Critical Crossing Program

NDPP Reference		Service Territory	Total Structures	Total Complete 2023*	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP	Cost Recovery GRC	Scope Extends Beyond 2026*
Critical Crossings	Distribution	NPC	32	16	20-02031/ 20-02032	Design/Permit Construction	(continue) Design/Permit Construction	~16	No	Yes
	Transmission	NPC	48	14				~34		

Proposed Triennial Budget

The Companies seek authorization to continue the design, permitting, and construction for the two remaining pole stopper circuits, future identified guyed dead-end structures, and the 33 remaining critical crossing line ruggedization locations that were previously identified. Table 46 shows the funding required for the pole stoppers and critical crossing lines ruggedization.

Table 46. Pole Stoppers and Critical Crossing, 2023 NDPP Triennial Funding Request

Nevada Power	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Grid Ruggedization	$ 10,958,376	$ 3,472,019	$ 3,727,810	$ 3,758,547
Critical Crossings	$ 7,075,176	$ 2,222,019	$ 2,433,810	$ 2,419,347
Pole Stoppers	$ 3,883,200	$ 1,250,000	$ 1,294,000	$ 1,339,200

2.6.5.4. TREE ATTACHMENT REMOVAL

Tree attachments are pieces of electrical infrastructure fastened to trees for structural support. Because there are no approved standards for tree attachments, they inherently introduce system risk from this electrical equipment being in close proximity to vegetation. Tree attachment risks exist throughout the northern region of NV Energy's distribution system. Based on mapping records and field surveys, 1,262 tree attachments have been identified in Tier 3 of the Basin.

There are several challenges that impede the elimination of tree attachments. In most cases, tree attachment removals require a third-party easement from property owners to replace the tree attachment with a new pole. Each tree attachment requires a case-by-case evaluation to determine how to eliminate the tree attachment.

The Tree Attachment Removal Program includes a written tree attachment removal plan. The removal plan also includes a customer communication outreach plan. The communication plan calls for progressive communication with property owners to resolve the tree attachment removals. A tracking spreadsheet has been developed to track the tree attachment removals and customer communications.

The Commission previously approved NV Energy's request for funding for tree attachment identification, development of the customer outreach plan, permitting, design, and prioritization of tasks related to the tree attachment removal plan.

Proposed Triennial Budget

NV Energy proposes to remove 80 tree attachments per year starting in 2024. Based on present budget estimates, the Companies request funding of $ 6,367,254 for 2024 through 2026 as indicated in Table 47 below. The Companies estimate total tree attachment removal in Tier 3 will take approximately 12 years.

Table 47. Tree Attachment Removal Program Proposed Budget

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Tree Attachment Removals	$ 6,367,254	$ 2,060,000	2,121,800	2,185,454

Table 48. Tree Attachment Removal

NDPP Reference	Fire Tier	Service Terriroty	Title	Total Tree Attachments	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Scope Extends Beyond 2026
Tree Attachment Removals	Tier 3	SPPC	NDPP Tree Attachment Removals	240	20-02031 22-08001 20-02032	Design/Permit and 2023 start construction	Design, permit and construction/removal of tree attachments	Yes
			Total	**240**				

2.6.5.5. OVERHEAD REBUILDS

Converting the legacy electric system infrastructure to modern fire mitigation design is a multi-year initiative. The 2020 NDPP emphasized replacing the highest risk equipment in Tier 3. As in the first NDPP, this Triennial Plan focuses on Tier 3 based on input from fire agencies to develop a thoughtful approach to harden overhead high-risk circuits. This fits within the Companies' fire mitigation plans that are forecasted over the next five to ten years. The current proposal uses a balanced strategy, targeting high-risk Tier 3 circuits in North Lake Tahoe, South Lake Tahoe, and Mt. Charleston areas as well as Tier 2 and Tier 1E circuit segments that reside along the eastern slope of the Sierra Nevada mountain range in areas where fires have previously occurred or in areas that present a risk of fire ignition and spread to adjacent communities.

Effectively mitigating risk in high-risk areas is a significant endeavor given the timelines required to complete these planned capital projects. Throughout 2022, as NV Energy executed on its NDPP projects, it learned several ways to increase efficiencies associated with outage impacts on communities and reduce costly remobilization, while maximizing the footprint of risk reduction where practical and possible.

Coordination of NDPP projects in a small geographic area, with limited alternate electric feeds and a sensitive system protection scheme, is highly complex. Permitting constraints, customer impacts, and a short seasonal construction window compound the complexity. Efficiencies can be gained by using a programmatic approach for the Grid Hardening Programs where project scope is set in motion 2-3 years in advance. Accomplishing this will take 2-3 years of advanced design. Preparing a portfolio of "shovel ready" work projects, coordinated with critical external stakeholders and communities, reflects a significant improvement, and industry best practice.

The February 28, 2020, NDPP submitted in Docket No. 20-02031 outlined a mitigation effectiveness-to-cost ratio analysis for covered conductor, undergrounding, and bare conductor. This NDPP recommends overhead rebuild for four circuit segments, using covered conductor in a tree wire configuration. Covered

conductor configurations achieve many of the same ignition mitigation benefits as converting wire to underground cable. Installation of overhead covered conductor is accomplished at a lower cost and faster rate than undergrounding. Covered conductor also has similar public safety benefits as undergrounding and is less prone to faults by design but does not suffer from the troubleshooting and restoration delays associated with underground systems, which may be a critical factor during natural disasters or PSOM events, affording faster repairs, and shorter outage times for customers.

The Companies propose these design and construction strategies to achieve maximum risk reductions year-round and levelized costs over the longer term. The opportunity to evaluate and perform formal design across a broad list of circuits provides an opportunity to procure materials in advance. This is a critical factor given current supply chain issues and competition for specialized fire mitigation materials such as poles and covered conductor. The Companies plan to design and permit long lead time projects in parallel to projects with fewer permitting requirements to create a steady flow of construction that can potentially occur year-round. Tier 3 projects continue to remain highest priority for implementation. To create year-round work that can increase the Companies' opportunity to secure consistent external resource contracts and perform risk removal at the most consistent and efficient rate, implementation will include mitigation work in the lower Tiers. Implementing projects in the lower Tiers in conjunction with work in Tier 3 will allow risk mitigation work to be ongoing over the course of a year in areas with less complex permitting, creating a continuous workflow, and using crews already deployed. Additionally, line rebuild projects are segmented efficiently according to permit requirements. Segments requiring simple permits are prioritized and can move into construction while the permits for the more involved segments are obtained. NV Energy continues to work with local, state, and federal permitting agencies to collaboratively seek timeline efficiencies. The ability to perform formal design of early phase projects promotes collaboration with permitting agencies requesting project submittals two years in advance so they can determine resource levels required to facilitate the needs of the utility among multiple jurisdictions.

The Second Amendment to the 2020 NDPP in Docket No. 22-08001 approved funding for design and permitting for the six overhead rebuild segments shown in Table 49. The Companies recommend twenty-six miles of overhead rebuild on these segments of circuits. These projects are separated into either an NDPP or NDPP-GRC classification using the rationale outlined in 2.6.3. Maps of the line rebuild projects are provided in Appendix I.

Table 49. Overhead Rebuilds

NDPP Reference	Circuits	Fire Tier	Service Territroty	Total Miles Line Rebuilds	Length in miles 2024-2026	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Cost Recovery NDPP-Miles	Cost Recovery GRC-Miles	Scope Extends Beyond 2026*-Miles
OH Rebuilds	Incline 4100	Tier 3	SPPC	28	4	22-08001	Design / Permit	Construction	4		24
	RH 1502	Tier 3		25	12					12	13
	Mt Rose 210	Tier 2		3	3					3	0
	Chimney Peak	Tier 2		2.7	1.65				1.65		0
	Curry 1280	Tier 3, 2		4	2				2		2
	Muller 1295	Tier 3, 1E		31	5				5		26
		Total		91	26				11	15	65

The Chimney Peak 201 rebuild originated from the 2020 inaugural NDPP. Incline 4100, Curry 1280, and Muller 1295 are new recommendations to rebuild eleven miles of overhead line straddling Tier 3 and either

Tier 2 or Tier 1E, offering the first opportunity for the Companies to manage a larger footprint of risk reduction while using Round Hill 1502 and Mt. Rose 210 as the first NDPP-GRC rebuild projects to transition to general rate recovery. Table 49 shows the breakdown and separation of NDPP and NDPP-GRC projects the Companies recommend for 2024-2026. Risk refinement is anticipated as the Companies implement and learn to use WRRM advanced technology, such as Technosylva. However, given the environmental and conditional awareness of these circuit segments, the Companies emphasize the importance of beginning a broader implementation of fire mitigation materials in a contiguous footprint versus a patchwork approach.

Table 50 details the funding requests for the NDPP distribution line rebuild projects, which include the Curry 1280, Incline 4100, and Muller 1295 circuit segments.

Table 50. Funding Request for Distribution Line Rebuilds for 2024-2026

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Distribution Line Rebuilds	$ 12,577,524	$ 4,902,524	$ 4,775,000	$ 2,900,000
Curry 1280	$ 2,800,000		$ 1,400,000	$ 1,400,000
Incline 4100	$ 5,250,000	$ 3,375,000	$ 1,875,000	
Muller 1295	$ 4,527,524	$ 1,527,524	$ 1,500,000	$ 1,500,000

Curry 1280 Rebuild

Curry 1280 is a 12.47 kV distribution circuit with 0.88 miles of line located in Tier 3 and 8.5 miles of line located in Tier 1E southwest of Carson City on the eastern slope of the Sierra Nevada mountain range. The circuit runs into the Clear Creek Canyon up the eastern slope of the High Sierra Mountain Range to a neighborhood with minimal emergency access in the event of a catastrophic wildfire. A fire ignition event on this circuit poses a risk to nearby communities. The Companies are proposing 4.05 miles of overhead rebuild on the Curry 1280 circuit; 0.33 miles of Tier 3 and 3.7 miles of line in Tier 1E. In the Second Amendment, the Companies requested $100,000 to perform evaluation of the circuit segment and perform formal planning and design and permitting of the first phases of the Curry 1280 circuit rebuild. The Companies are asking for $2,800,000 to begin the construction of 2 miles of the proposed 4.05 miles of line to rebuild. Design and permitting for the future 2.05 miles will also begin with the proposed budget. **Error! Reference source not found.**51 reflects funding request for 2024-2026. This segment is susceptible to the risk associated to extreme wind events and dry fuels discussed in Section 2.6.1. Map reference: Appendix I 10 – I 11.

Table 51. Curry 1280 Line Rebuild Funding Request 2024-2026

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Curry 1280	$ 2,800,000		$ 1,400,000	$ 1,400,000

Incline 4100

Incline 4100 is a 40-mile distribution line located in Tier 3 of North Lake Tahoe. Approximately 12 miles of the Incline 4100 was identified by the North Lake Tahoe Fire Protection District as high risk for fire ignition and spread resulting in a catastrophic event due to environmental conditions, lack of evacuation routes, and impact to community water sources. Six of the 12 miles are addressed in the NDPP's undergrounding plan as four separate segments and six of the 12 miles are being replaced under the Copper Wire Program. Additionally, the remaining 28 miles of the Incline 4100 line includes a high volume of copper wire and corrections identified through patrols and inspection. Because of the many overlapping NDPP initiatives

identified on this circuit, the Companies recommend a holistic design that considers a rebuild of the entire circuit in lieu of a series of single asset or single span replacements.

The Companies request $5,250,000 to begin the construction of approximately four of the 28 miles of the Incline 4100 circuit not included in the undergrounding plan or Copper Wire Program and begin design and permitting of future phases. Dependent on permitting, the Companies anticipate beginning construction in 2024. Table 52 below reflects the funding request for 2024-2026. Map reference: Appendix I 16 – I 18.

Table 52. Incline 4100 Line Rebuild Funding Request 2024-2026

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Incline 4100	$ 5,250,000	$ 3,375,000	$ 1,875,000	

Muller 1295 Rebuild

Muller 1295 is a 44-mile distribution line located in Tier 3, South Lake Tahoe, and Tier 2 and Tier 1E within the Carson Region. This circuit has unique conditions where the area receives extreme runoff from spring snow melt on the eastern slope of the Sierras, creating flooding conditions that allow for rapid growth of underbrush. Once the runoff evaporates, the area is left with highly flammable underbrush in an area with extreme wind events. An 11.8-mile segment of the Muller 1295 line was identified by local fire protection districts in the undergrounding plan and was rated as high risk for fire ignition and spread that could result in a catastrophic fire, and therefore these segments are addressed in the undergrounding plan. A one-mile segment of the Muller 1295 line was identified and approved as part of the Copper Wire Program. Additionally, the Companies propose to rebuild the remaining 31.2 miles of circuit. During the 2021 Caldor Fire, the Muller 1295 circuit was under threat of destruction from the fire when it was identified to be in the path of the fire. High-level material estimates were initiated for the portion of line anticipating emergency restoration efforts. While the circuit was not destroyed, the Companies requested $100,000 in the Second Amendment to complete evaluation of the circuit and perform formal planning, design, and permitting of the first phases of the Muller 1295 circuit rebuild. The Companies now request a total of $4,527,524 to begin the construction of approximately 5 miles of the 31.2 remaining miles of circuit and begin design and permitting on future phases. **Error! Reference source not found.** 53 below reflects the funding request for construction costs in 2024-2026 and design and permitting costs for future phases. This circuit is susceptible to the risk associated to extreme wind events and dry fuels discussed in Section 2.6.1. Map reference: Appendix I 8 – I 9.

Table 53. Muller 1295 Line Rebuild Funding Request 2024-2026

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Muller 1295	$ 4,527,524	$ 1,527,524	$ 1,500,000	$ 1,500,000

Chimney Peak 201 Line Rebuild

The Chimney Peak #201 line rebuild consists of approximately 2.7 miles of 25 kV overhead distribution feeding the Chimney Peak radio site in Verdi, Nevada, which provides critical microwave, and radio communications to NV Energy and several other entities. Chimney Peak is being rebuilt using modern fire mitigation design consisting of covered conductor and fire mesh wrapped wood poles. Phase one, approximately one and a half miles, was completed in 2022. Design for Phase 2 was approved through the Second Amendment. Phase 2 includes approximately 8,742 circuit feet of overhead and 938 circuit feet of underground located on USFS property. Lead time to construction is anticipated to be one to two years. Once the permit is submitted for Phase 2, the USFS will determine the level of assessment required to permit the line, i.e. cultural and biological surveys. The amount and type of surveys and the subsequent

review by USFS is the driver for determining if the lead time will be one or two years. The Companies request $3,707,360 for Phase 2 construction in 2024-2026. The Companies anticipate construction of Phase 2 will occur during 2024 or 2025.

54 reflects the funding request for 2024-2026. Map reference: Appendix I 15.

Table 54. Chimney Peak 201 Line Rebuild Funding Request 2024-2026

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Line Rebuild - Chimney Peak #201	$ 3,707,360	$ 244,975	$ 1,451,709	$ 2,010,676

Round Hill 1502 (NDPP-GRC)

The Round Hill 1502 is a 37-mile distribution circuit located entirely in Tier 3, South Lake Tahoe. Approximately 12.5 miles of the Round Hill 1502 circuit has been documented by the fire protection district as high risk for fire ignition and spread resulting in a catastrophic event. The 12.5 miles are addressed in the NDPP's undergrounding plan as two separate segments. The remaining 24.5 miles, outside of the Tier area, is included as an NDPP-GRC project. The 2024-2026 GRC project forecast is $15,767,000. During the 2021 Caldor Fire, the Round Hill 1502 circuit was under threat of destruction from the fire when it was identified to be in the path of the fire. Map reference: Appendix I 1 – I 7.

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Line Rebuild - Round Hill 1502	$15,767,000	$ 5,375,000	$ 3,670,000	$ 6,722,000

Mt. Rose 210 (NDPP-GRC)

Mt. Rose 210 is a 24.9kV distribution circuit located south of Reno on the eastern slope of the Sierra Nevada mountain range. The circuit is a total of 29.6 miles of overhead and 23.8 miles of underground cable. The circuit extends out of the Mt. Rose substation as an overhead line traveling southeast to serve a residential area in the eastern range of the Sierra Nevada foothills. The Mt. Rose 210 circuit is located on a stretch of land where wildfires have occurred twice in recent years including the Pinehaven and Caughlin Ranch fires. This segment is susceptible to the risk associated to extreme wind events and dry fuels discussed in Section 2.6.1.

Note 1: this proposal targets some of the same circuits identified in the NDPP Selective Underground Plan; however, it does not target the same segments. The segments identified in the NDPP Selective Underground Plan, and all elements of the underground plan remain intact. Rather, the Companies' evaluation, and design of proposed circuits for hardening act in coordination with the NDPP's Selective Underground Plan. The Companies propose to rebuild 12 miles of overhead line as an NDPP-GRC project. The 2024-2026 GRC project forecast is $3,000,000. Map reference: Appendix I 12 – I 14.

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Line Rebuild - Mt. Rose 210	$ 3,000,000	$ 2,000,000	$ 1,000,000	$ -

2.6.5.6. SUBSTATION HARDENING INVESTMENTS

Substation Hardening Overview

The Companies have 412 substations that are spread throughout their 45,703 square mile service territory. The landscape across that service territory varies greatly from forested mountainous terrain, open rangeland, rural communities, urban communities, and WUI. The varying landscapes that house the different substations introduce different risks and challenges as they pertain to natural disasters.

Substation Hardening investments are the installation of new equipment or modifications of existing equipment to reduce the risk of a fire originating inside a substation and spreading outwards, resulting in a wildfire. The measures include solid fireproof perimeter walls, weed barrier and crushed rock vegetation control, insulated bus, and conductors, synthetic transformer oil, replacement of oil-filled equipment, installation of metal clad enclosed switchgear, and improved substation grounding. Solid fireproof perimeter walls will also reduce the risk of a wildfire that started outside the substation causing damage to equipment located inside a substation.

In the 2020 NDPP, the Companies prioritized five substations located in Tier 3 that require hardening investments to mitigate a wildfire risk. The five substations that were identified were Kingsbury, Round Hill, Incline, Glenbrook, and North Truckee. The Substation Hardening investments are as follows:

1) **Solid Fire-Resistant Perimeter Walls** – A solid fire-resistant perimeter wall provides a barrier to help contain a fire within the substation or keep a fire outside from breaching the perimeter and damaging equipment. The solid fire-resistant wall also minimizes the opportunity for vegetation seedlings to enter the substation creating additional fire fuels. Since there are five substations proposed for this hardening, the installation of barrier walls is being combined and bid-out as one project to reduce cost and installation time.

2) **Transformer Oil Replacement (FR3 Transformer Oil)** – Substation Transformers have used mineral oils as insulating liquids since 1887. The oil performs multiple functions, including dielectric insulating strength, heat transfer, diagnostic capabilities, and protecting the paper laminates in the transformer core. [26] Traditional mineral oil has a 320°F (160°c) flash point but a new insulating oil, identified as FR3 Transformer Oil, has a flash point of 680°F (360°c) while maintaining or improving the other characteristics required for transformer oils. The higher flash point of FR3 Transformer Oil reduces the likelihood the transformer oil can ignite or burn.

3) **Breaker and Recloser Oil Filled Equipment Replacement** – Legacy substation breakers and reclosers and are filled with mineral oil as the insulating material. The mineral oil has a flash point near 320°F with the possibility of igniting or spraying flaming oil during a catastrophic failure event. Modern breakers and reclosers use vacuum or sulfur hexafluoride gas (SF_6) as the insulating material. The replacement of legacy breakers and reclosers with modern equipment will reduce the fire hazard at the substation by removing oil as an ignition source.

4) **Substation Grounding** – Substation equipment is connected to a substation grounding grid that bonds all metallic structures and equipment together. An improvement of the bonding of equipment to the substation grounding grid will improve the return path of certain low impedance faults. An improved grounding grid will enable faster fault clearing time, reducing the duration of arcing, a source of ignition, which could result in a wildfire

[26] For example when gases in the oil are measured.

5) **Weed Barrier and Crushed Rock Vegetation Control** – Vegetation, especially when dry, can create a fire hazard when arcing occurs within the substation or when substation equipment fails in service. The area inside the boundary should be clear of vegetation to eliminate those hazards. Vegetation can be better controlled with the installation of geo-synthetic fabric below an adequate layer of type-two soil or surface rock.

6) **Insulated Bus or Conductors for Distribution** – Traditional aluminum bus and conductors used in substation design do not have an outer insulation covering, which subjects them to vegetation, wildlife, and other debris contact. Contact with the bare bus or conductor has the potential to generate an arcing fault or catastrophic failure of equipment. Custom-fitted insulation installed for substation equipment will greatly reduce the likelihood of vegetation, animal, or debris contact that could cause equipment failures inside of a substation. This will reduce the likelihood of arcing or catastrophic failure of equipment leading to a wildfire ignition. Table 55 below identifies the Substation Hardening proposed for each of the six substations.

Table 55. Long-Term Substation Hardening Investments

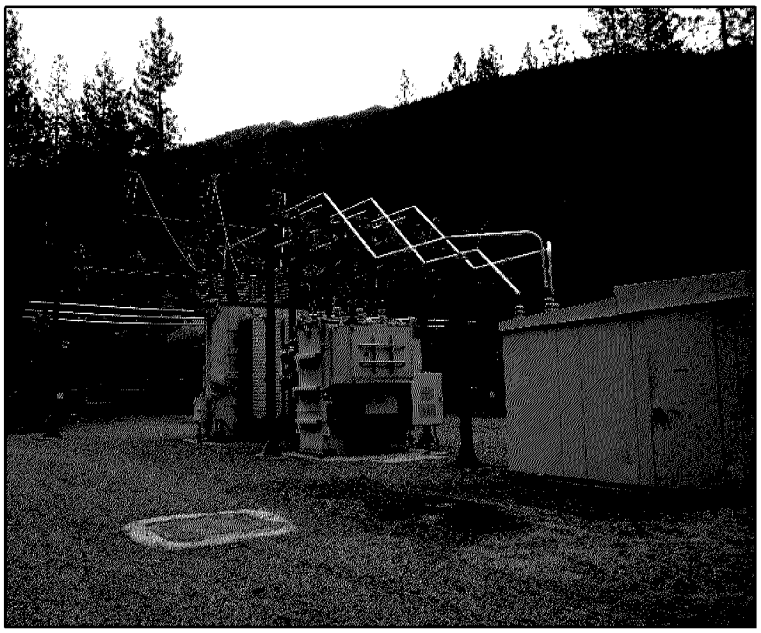
Substation	FR3 Transformer Oil	Replace Oil Filled Equipment	Insulated Bus or Conductors	Weed and Vegetation Control	Substation Grounding	Perimeter Wall
Kingsbury	✓	✓	✓	✓	✓	✓
Incline	-	✓	✓	✓	✓	✓
Round Hill	✓	-	✓	✓	-	✓
Glenbrook	✓	-	✓	✓	✓	✓
North Truckee	✓	-	✓	✓	-	✓

Substation Descriptions

Incline

The Incline Substation is located in Tier 3 of Incline Village, Nevada, adjacent to the sewer plant, and surrounded by national forest. See Figure 51 for a picture of the Incline Substation. The substation has limited distance between vegetation and substation equipment (~15 feet) and utilizes a seven-foot chain link fence for perimeter security. Should a fire ignite within the substation, it is likely that westward winds would push the fire toward the surrounding forest with little to prevent the spread. In the 1990's the substation's metal clad switchgear experienced an internal fault creating an arc blast and fire, but the damage was contained within the switchgear.

Figure 51. Incline Substation



Round Hill

The Round Hill Substation is located in Tier 3 near a residential area of Stateline, Nevada, adjacent to the sewer plant, and surrounded by national forest. Figure 52 shows a picture of the Round Hill Substation. The substation has limited distance between vegetation and substation equipment (~15 feet) and utilizes a ten-foot porous fiber composite fence for perimeter security. Should a fire ignite within the substation, it is likely that westward winds would push the fire toward the surrounding forest with little to prevent the spread. The Round Hill Substation underwent some rebuild efforts in 2017-2018 after the substation experienced a catastrophic failure and fire in August of 2017, which did not spread external to the substation, after an animal contact at one of the feeder breakers. Calm wind conditions likely prevented the spread of the fire to the surrounding forest.[27]

Figure 52. Round Hill Substation

[27] "Past Weather in South Lake Tahoe, California, USA." https://www.timeanddate.com/weather/usa/south-lake-tahoe/historic?month=8&year=2017. https://www.timeanddate.com/weather/usa/south-lake-tahoe/historic?month=8&year=2017. August 2017.

Kingsbury

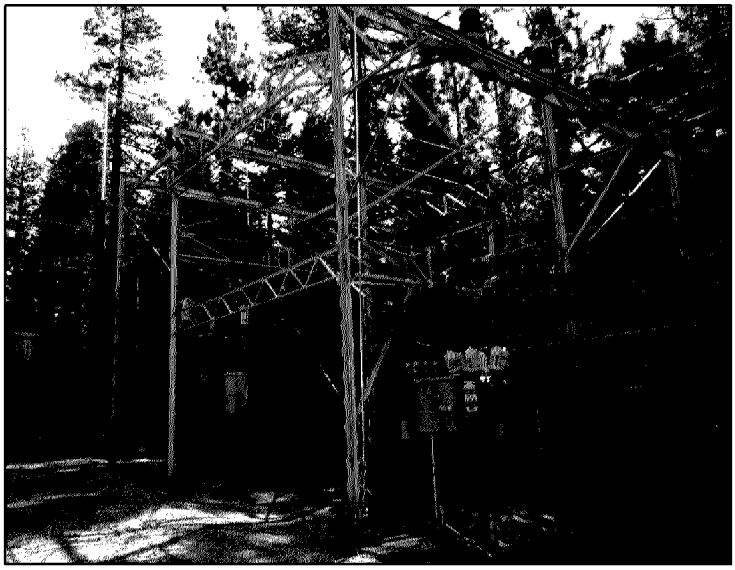
The Kingsbury Substation is located in Tier 3 on the east side of the Carson mountain range adjacent to the Sierra Nevada mountain range near the summit. See Figure 53 for a picture of the Kingsbury Substation. The substation has limited distance between vegetation and substation equipment (~15 feet) and utilizes a seven-foot chain link fence for perimeter security. Should a fire ignite within the substation, it is likely that summit winds would push the fire toward the surrounding forest with little to prevent the spread.

Figure 53. Kingsbury Substation

Glenbrook

The Glenbrook Substation is located in Tier 3 in Stateline, Nevada. The substation is located in a residential area of Glenbrook, Nevada, adjacent to homes, and surrounded by national forest. See Figure 54 for a picture of the Glenbrook Substation. The substation has limited distance between vegetation and substation equipment (~15 feet) and utilizes a combination of seven-foot chain link, 12-foot wood, and 14-foot solid wall for perimeter security. The solid wall is located on the south side, plus two panels on the west side of the substation and was installed for noise suppression for the neighboring home in 2010. The wood fence is located on the west side of the substation. Chain link encompasses the rest of the site. Should a fire ignite within the substation it is likely that westward or northern winds would push the fire toward the surrounding forest with little to prevent the spread.

Figure 54. Glenbrook Substation



North Truckee

The North Truckee Substation is in Tier 2 in Truckee, California adjacent to the Tahoe National Forest. See Figure 55 for a picture of the North Truckee Substation. The substation has some distance between vegetation and substation equipment (>20 feet) and utilizes a seven-foot chain link fence for perimeter security. Should a fire ignite within the substation it is likely that east-southeast winds would push the fire toward the surrounding forest with little to prevent the spread.

Figure 55. North Truckee Substation

Substation Hardening Status

The Substation Hardening investments in this Plan are a continuation of the original investment detailed in the 2020 NDPP (including the First, and Second Amendments). The 2020 NDPP investments included design, permitting, and construction of some of the solid fire-resistant perimeter walls ("perimeter walls"). The perimeter walls scheduled to be completed under the 2020 NDPP are at the North Truckee and Kingsbury substations. Figure 56 depicts a typical concrete masonry unit ("CMU") perimeter wall.

Figure 56. Typical Fire-Resistant Perimeter Wall Design

Triennial Plan

In the triennial Plan, the Companies recommend continuing the substation hardening investments that began under the 2020 NDPP. Table 56 summarizes the 2024-2026 funding requests. The company proposes to construct the barrier walls at Incline and Round Hill substations, complete the interior investments at North Truckee, Kingsbury, Incline, and Round Hill substation, and completely rebuild Glenbrook substation. This will complete the substation hardening investments at the five prioritized Tier 3 substations.

Table 56. Funding Requested for Substation Hardening

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Substation Hardening	$ 14,411,799	$ 4,966,931	$ 4,475,851	$ 4,969,017
Glenbrook Substation	$ 8,379,764	$ 1,244,521	$ 3,722,715	$ 3,412,528
Barrier Walls	$ 978,293	$ 978,293		
Interior	$ 5,053,742	$ 2,744,117	$ 753,137	$ 1,556,489

Figure 57. Location of the Incline, Glenbrook, Kingsbury, and Round Hill Substation in Tier 3

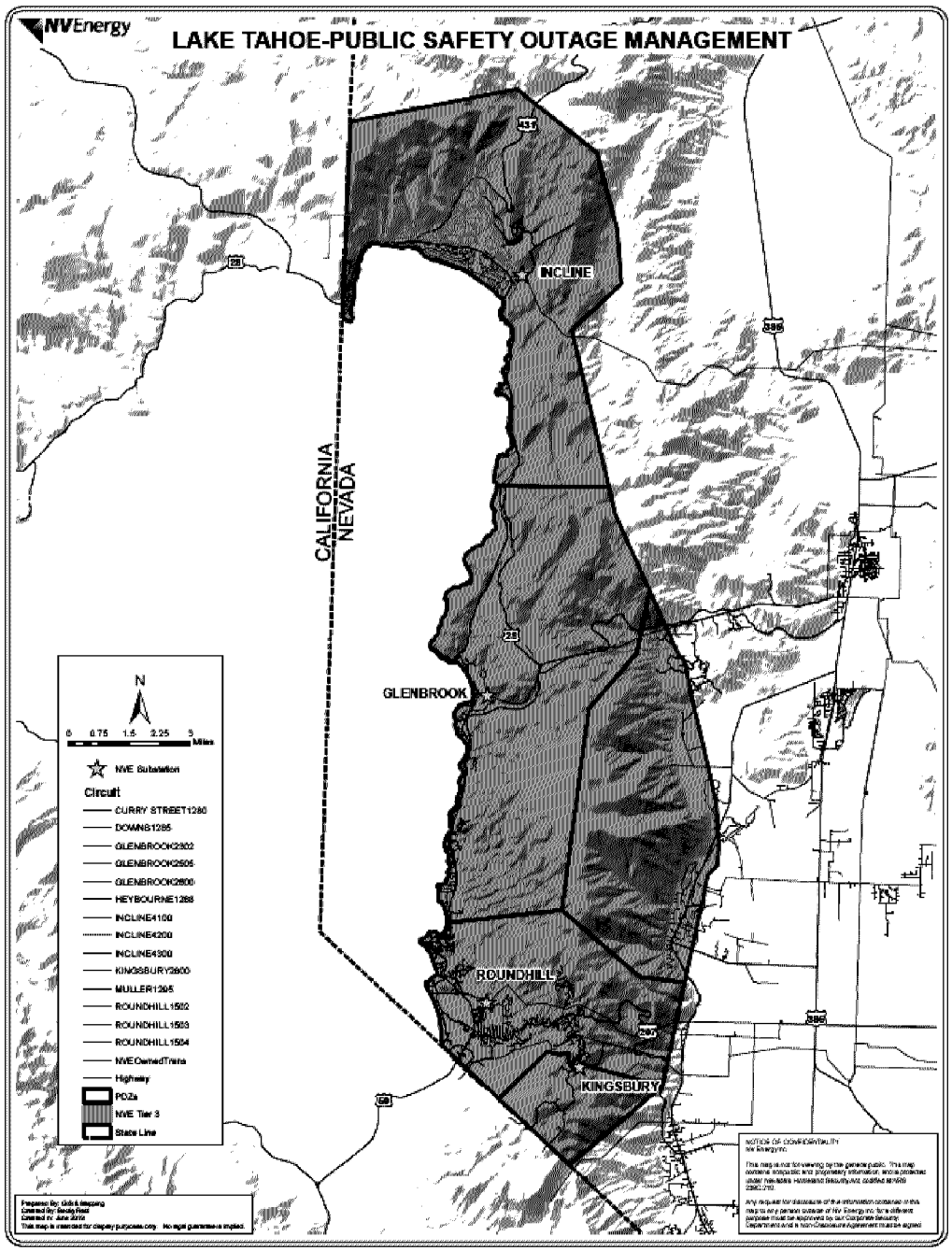
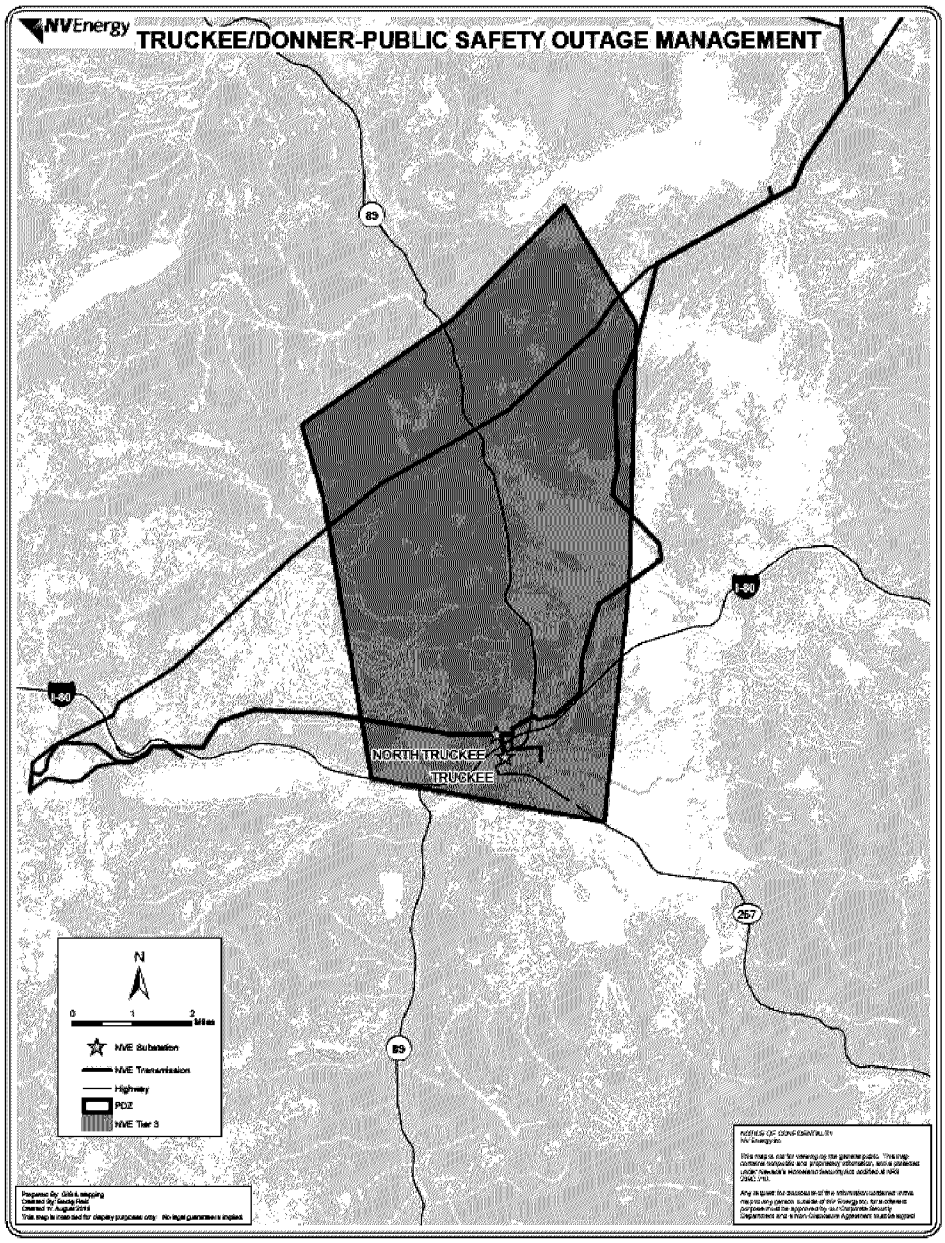


Figure 58. Location of the North Truckee Substation in Tier 2



2.6.5.7. LIGHTNING ARRESTER REPLACEMENT

Lightning “surge” arresters are used to protect the distribution system from the damaging effects of surging current caused by lightning strikes. Certain types of lightning arresters, known as “gap” arresters, were previously used on overhead distribution lines. In “gap” arresters, surging currents were diffused across an air gap, causing hot sparks to fall to the ground. These hot sparks are a potential ignition source for a wildfire. The Lightning Arrester Replacement Program is a continuation of the program identified in the 2020 NDPP. NV Energy performed an engineering study that determined metal oxide varistor (“MOV”) arresters

were the preferred replacement for expulsion "gap" arresters. During 2022, 464 porcelain body "gap" arresters were replaced in Tier 3. As Tier 2 and 1E detailed inspections are conducted, lightning arrestor locations are inventoried, and replacements are worked as a Correction or scheduled to be absorbed within other NDPP projects.

Table 57 below shows the status of the Lightning Arrester Replacement Program.

Table 57. Status of the Lighting Arrester Program

NDPP Reference	Fire Tier	Service Terriroty	Title	Prior Docket No.	Prior Approval	2024-2026 Recommendation	Scope Extends Beyond 2026
Lightning Arrester Replacements	Tier 3	SPPC	NDPP Lightning Arrester Removals	20-02031	Perform engineering review and targeted replacements	Identify quantity and location and execute replacement of "gap" lightning arresters	No
	Tier 2	SPPC		22-08001			No
	Tier 1E	SPPC		20-02032			Yes

NV Energy recommends $170,000 to address Tier 2 and Tier 1E stand-alone "gap" arrestor replacements in 2024-2026 as they are identified through detailed inspections. This will enable the Companies to begin the replacement of the older type of gap arresters in Tier 2 and Tier 1E. Table 58 below shows the requested funding over Plan period.

Table 58. Lightning Arrester Replacement Program

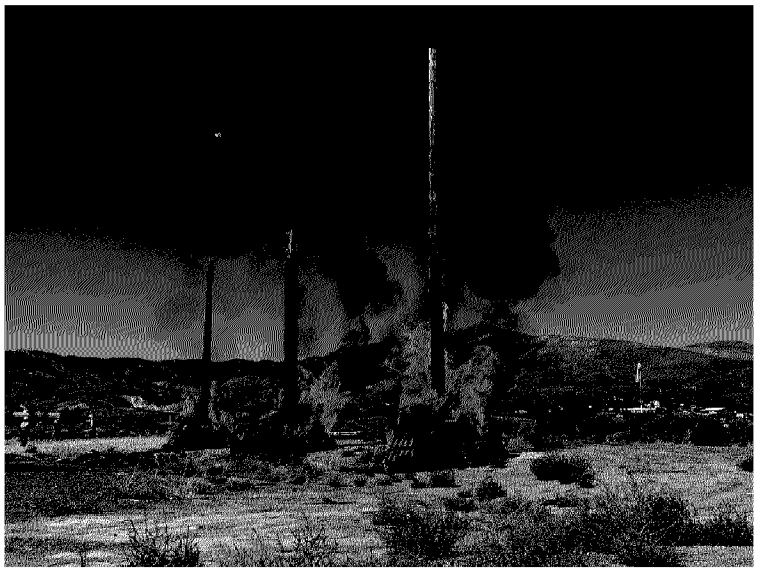
OMAG	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Lightning Arrestors	170,000	55,000	57,000	58,000
SPPC	170,000	55,000	57,000	58,000

2.6.5.8. FIRE MESH PROGRAM EXPANSION: (POLE WRAPPING) INSTALLATION IN WILDFIRE HTAS

Changes in the climate and environment are contributing to worsening severe weather events, including increased risk of wildfires in NV Energy's service territory. NV Energy is proposing to continue to deploy a fire-resistant pole wrap known as fire mesh. Fire mesh is designed to protect wood structures from burning or scorching, that can significantly weaken poles. Fire mesh forms a barrier by expanding at temperatures greater than 300°F that shields wooden poles from radiant heat and fire. The coating on the mesh expands to prevent ignition and reduces burning impacts on the pole. In the 2020 NDPP the Companies proposed to install fire mesh technology on all poles in the Tier 3, Tier 2, and Tier 1E areas. Fire mesh was added to the Companies' fire mitigation design standard for all of the fire Tiers 3, 2, 1E, and 1. Fire mesh is now installed on new wood poles in the Wildfire HTAs where installation of a non-wood pole is not feasible.

NV Energy performed fire tests on wooden poles to determine the effectiveness of the fire mesh material and to better understand the structural integrity of the burned pole. NV Energy conducted the fire test inside the NV Energy Carson City Region yard. A 12-foot fire was permitted to burn for 15 minutes around a pole with fire mesh. The pole remained useful and structurally intact, demonstrating effectiveness. The wooden pole was protected from igniting, maintained structural integrity, and burns were relegated to the surface only. Figure 59 shows a picture of fire test.

Figure 59. Pole Fire Mesh Installation & Ignition Test Results



The Companies recommend $3,341,015 to address poles in the wildfire areas of Tier 3, 2, 1E, and 1 where wildfire risk is prevalent and no immediate pole replacement projects are planned. Table 59 below shows the requested funding for the Plan period for installation the fire wrap on existing poles. Fire mesh installation will begin along critical evacuation routes, critical circuits, and higher fire ignition areas in Tier 2, Tier 1E and Tier 1. New poles in the Tier 3 will have the fire mesh installed to the standards. The Companies will collaborate NV Energy electric operations personnel, EWG fire agencies and use Technosylva, evacuation maps and fire risk maps to assure priority areas are addressed first.

Table 59. Fire Mesh Program

	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Fire Mesh	$ 3,341,015	$ 1,059,799	$ 1,112,789	$ 1,168,428
NPC	$ 2,017,521	$ 639,975	$ 671,974	$ 705,572
SPPC	$ 1,323,494	$ 419,824	$ 440,815	$ 462,856

3. COMMUNICATIONS AND OUTREACH

NV Energy has engaged with the communities we serve since the beginning of the NDPP formulation. Outreach and collaboration are a critical pillar of the NDPP to keep the Plan relevant and to leverage expert and community resources whenever possible. The Companies use a multi-pronged approach for refining the NDPP that includes focused discussions with the EWG and customer outreach sessions. NV Energy fosters an extensive customer education and outreach effort to continue to build awareness, preparedness, and identify actions related to heightened natural disaster threats. To expand communications and public outreach, the Companies are proposing the addition of a corporate communications specialist. This position is described in more detail in Section 7 Resource Sufficiency.

3.1. EWG ENGAGEMENT

NV Energy convenes its group of experts based on the requirements of SB 329 and has expanded the expert engagement to include a broader representation across its public safety partners. For the Triennial Plan, the Companies convened two three-hour sessions of the EWG. Topics discussed included natural disaster drivers, emergency operations, resilience, situational and conditional awareness, and communications and outreach. The EWG sessions continue to provide valuable insight and collaboration opportunities to leverage skills and capabilities of multiple organizations to continue to prioritize risk reduction measures and harmonize actions and approaches to protecting communities and customers.

To refine and prioritize actions in the NDPP, NV Energy held subgroup meetings for specific projects and programs. Subgroups of the EWG will continue to meet on focused topics for ongoing alignment. The full EWG will also continue to meet, but less frequently than the subgroups.

3.2. CUSTOMER COMMUNICATION

Communication is of utmost importance when protecting against natural disasters. NV Energy has stress-tested and improved its customer call center capabilities to deal with additional volumes during a natural disaster event. Emergency communications has a public-facing aspect for which NV Energy has assigned specific personnel based on working relationships. Collaboration among critical services providers includes CRCs, temporary enhancement of communication capacity, and mutual aid programs.

NV Energy encourages customers to stay informed through its webpage, nvenergy.com/ndpp, to obtain updates on the Plan's development and community engagement efforts. Additionally, customers can follow www.nvenergy.com/wildfiresafety for current notifications on potential PSOM events or wildfire emergencies, in addition to the landing page. Informational videos are provided on the Companies' website and social media sites. NV Energy's objective is to communicate as far ahead as possible to support public safety and collaborate across responders and to leverage resources, channels, and media to aid in delivering the most up-to-date information to the surrounding communities. Additional elements of the outreach include bill inserts, media outreach, social media, public meeting sessions, emergency notifications, and other channels. Community events are also promoted via nvenergy.com, social media, media outreach, and direct email to customers. The events are covered by local news media and provide an opportunity to share information on NV Energy's NDPP projects, programs, and initiatives.

Corporate Communications directs the activities for NV Energy's community outreach. They prepare messages and talking points used by the customer service teams throughout the lifecycle of NDPP activities. The Companies apply focused attention on their Green Cross Customers to gauge what extra support might needed during natural disaster events, as those customers can be particularly impacted by grid disturbances. NV Energy reviews its list of critical facilities regularly and refreshes its list of Green Cross Customers weekly.

3.3. CUSTOMER RESOURCE CENTERS

The Companies have adopted a flexible approach for CRCs from the inaugural plan.[28] In the event NV Energy activates a PSOM event, or if other natural disasters impact customers, NV Energy may open one or more CRCs. CRC locations are set for drive through or walk-up services depending on anticipated customer effects. Because of the limitations of community facilities especially in the Lake Tahoe and Mt. Charleston areas, to the Companies may use private facilities to serve the dual purpose of supporting impacted PSOM customers and also serving as an alternate Incident Command Post. Additional support for Green Cross Customers supplements services to the broader community.

Customers impacted by extended outages will be able to access water, snacks, handheld electronic charging devices, and obtain outage information, as well as other support at the CRCs. WiFi and increased cell coverage is enabled through COW devices. NV Energy notifies impacted customers of a CRC activation, its location, and hours of operation via text, phone, and/or email, at nvenergy.com/psom, and through NV Energy's social media channels.

Due to its large service territory and the potential need to staff between multiple CRC locations simultaneously, NV Energy has contracted with a vendor to supplement support for CRCs. This includes CRC set-up (such as providing a tent for customers or mobile office for NV Energy staff), directional signage, and other services as directed by NV Energy incident management team members. CRCs are funded through the Section 2.3.4 PSOM category.

NV Energy continues to refine critical areas within its service territory for customers that need back-up power. Certain CRC locations and critical facilities have deployed back-up generators, such as The Retreat at Mt. Charleston and gas stations in the Lake Tahoe area. NV Energy continues to assess suitability of back-up supply that would align to the service continuity needs.

[28] A full list of CRCs is available at https://www.nvenergy.com/safety/psom/customer-resource-centers.

4. ADVANCED TECHNOLOGIES AND STRATEGIES

The Companies have identified a select set of advanced technologies that are being implemented as efficient and effective risk reduction measures.

4.1. PILOT PROJECT FOR USE OF UAVS AND/OR SATELLITE IMAGING FOR LINE PATROL, VEGETATION CLEARANCES AND IMAGE ANALYTICS

Industry best practices are introducing the use of UAVs and satellite data for inspections, especially in hard-to-reach areas. This technology and capability has seen dramatic improvements in quality and usefulness in the past several years. The Companies propose to continue to evaluate this technology as a pilot project for use in line patrols, vegetation management, or other projects requiring visual observations. The real-time video feeds from UAV's could be remotely evaluated by lines personnel, fire responders, or other key personnel that require visual data and information. The use of high-resolution satellite data also might be relevant to validating and providing predictive analysis for vegetation management treatments. This technology is rapidly evolving, and the Companies are seeking funding for evaluating these technologies.

4.2. SYSTEM PROTECTION STUDY

The objective of system protection is to isolate sections of the grid so that the rest of the system can function satisfactorily. System protection devices detect and isolate anomalies, then return the power system to a safe operating state. Advances in the system protection and relaying technology are moving at a quick pace. The industry is gaining experience in using newer devices at an equally rapid pace. NV Energy proposes a full system protection study to understand the impacts of new technology on the unique configuration and topology of its electric system. In a fully coordinated and operational state, telecommunications, remote operations, increased sectionalization and quickly operating safety schemes can provide risk reduction benefits and may also extend the seasonal work and operating windows with improved system reliability. The Companies will learn how to best incorporate remote operating devices, such as trip savers, high impedance fault protection, and falling conductor disconnects into the network. New devices that use solid state technologies operate rapidly. These fast-operating devices must be harmonized with other mechanical devices that operate more slowly and could inadvertently mis-operate from a misinterpreted event condition. The estimated cost for this study is $200,000 to determine the best technology and configuration of system protection devices to reduce the risk of wildfires and maintain system reliability. The results of the study will inform a future integration plan for remotely operated and interoperable devices to reduce risk and improve safety through protection technology that will be presented for future consideration in the NDPP.

The system protection study will focus on three elements. First, the study should inform if the system is configured properly for fire season mode and incorporates fast settings for fire season modes to increase the speed of fault clearing. Second, the study will look at coordination of trip savers into a "gang operation" mode. This will ensure that if a fault occurs on a single phase, the remaining phases will be coordinated together and simultaneously operate to safely de-energize the system. The third part of the study will holistically evaluate device interoperability across the entire system to optimize protection, lower fault clearing times, and reduce fire risk.

Table 60. System Protection Study OMAG Budget

	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Advanced Technologies - System Protection Study	200,000	200,000		
NPC	40,000	40,000		
SPPC	160,000	160,000		

4.3. INTELLIGENT RECLOSERS PILOT PROGRAM

Wildfire Tiers transect distribution lines in a non-continuous pattern. However, for the purposes of PSOMs, entire circuits are currently taken out of service even if portions of the circuit are not in a Wildfire Tier. This means that more customers are without power during a PSOM than safety requirements dictate. Sectionalization of the grid through adding intelligent reclosers will allow safety outages to be more precisely directed to only the PDZs. Intelligent reclosers are an important service continuity component. Adding these devices will help reduce the number of customers impacted by a PSOM by adding load break, isolation devices near the transition points between non-Tiered and Tiered areas. NV Energy is requesting $2.9 M as a capital pilot project to install intelligent reclosers in the Tier 1E grasslands of northeastern Nevada. The ability to remotely operate 28 intelligent reclosers, equipped with communications and remote relaying, on 15 different circuits, and 6 lines will provide equivalent safety protection while decreasing the size of the area impacted. Using intelligent devices that can be remotely set to fire season fail safe mode only as weather conditions dictate improves grid reliability when compared to the existing calendar-based approach. Being able to remotely set the system via telecommunications to fire season mode eliminates the need to physically send personnel to the field to change recloser protocols. Intelligent reclosers are a practical alternative to protecting lower ranked HTAs that may not be scheduled for resilience and hardening projects for many years.

Table 61. Intelligent Reclosers Capital Budget

Sierra	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Reclosers - PSOM	$ 2,900,000	$ 2,900,000		

4.4. ADVANCED TECHNOLOGIES BUDGET

In addition to the pilot project for UAVs and the System Protection Study, funding for Technosylva program referenced in Section 2 above is included. This request also includes the addition of a data scientist position and funding for enhanced technology dashboards. The data scientist position is necessary to provide technical leadership on data analysis. This role will interface with the Technosylva program by providing inputs and developing outputs for use in operational decision making and long-term risk analysis. The data scientist will develop tools and analysis to aid the Companies in making data driven decisions on various programs and projects in the NDPP.

There is additional funding for enhanced technology dashboards and business intelligence tools in the NDPP program. This includes improvements in data collection and work management systems to collect, manage, and report on projects and programs.

Table 62. Advanced Technologies OMAG Budget

	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Advanced Technologies	6,694,911	2,160,608	2,230,244	2,304,059
NPC	1,419,250	458,026	472,788	488,436
SPPC	5,275,661	1,702,582	1,757,456	1,815,623

5. GRANT FUNDING PURSUITS

NV Energy continues to aggressively pursue grant funding opportunities, both stand-alone and in partnership with various organizations, to defray costs and provide benefits to customers. NV Energy is assigning fully dedicated NDPP project managers and the Fire Chief to the grant application, procurement, and tracking process. Grant funding is being pursued across a variety of initiatives, primarily focused on vegetation management and grid resilience. To qualify for grant funding, organizations must demonstrate evidence of adequate personnel and equipment to resource-proposed programs. A key factor for grant awards is a "match" component, typically 10-50%, but it can exceed this amount for certain grants. The match requirement is shared by NV Energy and the grant funding receiver. The success of receiving grants that require match funding will not materialize if cost shares are not approved. Most of the grants NV Energy is pursuing relies on a partnership with stakeholders and having the stakeholder apply and manage the grant. Table 63 shows the anticipated grant funding for the Triennial Plan. The Companies have reduced budget amounts to correspond with this anticipated grant funding.

Table 63. Anticipated Grant Funding from Completed Applications

Funding Source	2024	2025	2026
SNPLMA-LTBMU	4,000,000	4,000,000	
Jasper HMGP		100,000	100,000
Long Valley	125,000	100,000	
Loyalton	100,000	100,000	
Rock Farm	150,000	350,000	200,000
Numbers		50,000	50,000
USFS TMFPD Contract	400,000	400,000	400,000
SNPLMA TMFPD	400,000	400,000	
SNPLMA TMFPD		1,500,000	1,500,000
SNPLMA NLTFPD	300,000	300,000	200,000
NLTFPD IVGID funding	50,000	50,000	50,000
NLTFPD -TRPA Grant		75,000	75,000
NLTFPD- USFS Contract	50,000	50,000	50,000
SNPLMA-LTBMU			4,000,000
TDFPD USFS Contract	50,000	50,000	50,000
USFS HTF Grant			
Total	5,625,000	7,525,000	6,675,000

5.1. TRIBAL GRANTS

The Companies have been collaborating with tribal organizations to leverage grant funding that is frequently available to them. These grants are awarded through a formulaic approach, which requires funding match from NV Energy that can exceed 100% of the grant award amount either in real money or in-kind contributions, such as vegetation clearing in high-risk areas. For the most recent collaborative effort with the Washoe Tribe, NV Energy is partnering on the following application for a grant to improve the resilience of the tribal communities' electric grid for disruptive events: Department of Energy Grid Deployment Office National Energy Technology Laboratory Formula Grant (DE-FOA-0002736). This grant would provide nearly $1.2 M over a two-year period, with an option for additional funding in the subsequent three years that requires match funding of $1.4 M from electric grid operator partners. By supporting grid resilience work in Tier areas, NV Energy can leverage grant funding and contributions for previously planned vegetation management work for mutual benefit. Tribal Nations can avail themselves of formula grants for grid resilience, so NV Energy's collaboration with the Washoe Tribe and Pyramid Lake Paiute Tribe establishes an approach that will be explored with other Tribal Nations in HTAs.

5.2. OTHER GRANTS

The Companies are pursuing other grant opportunities with the potential to advance or offset costs for NDPP initiatives. The most promising opportunities relate to grid resilience and infrastructure hardening, especially for disadvantaged communities that are managed by the Department of Energy. Most recently,

to pursue grant funding from the Bipartisan Infrastructure Law ("BIL"), NV Energy's concept paper for Funding Opportunity Announcement (FOA) No. DE-FOA-0002740, titled "BIL – Grid Resilience and Innovation Partnerships ("GRIP")" Concept Paper Identification Code: TA1-323-E, was accepted to move into a full application for certain grid resilience initiatives.

Specifically, regarding the BIL Concept Paper, NV Energy is seeking funding for the removal of copper wire in certain remote and disadvantaged community areas in Northern Nevada. The impacted lines would be the Heybourne 1288 and Virginia City 213. This project is slated to begin in 2024 with a 3-year duration, to be finished in 2027. It has a cost estimate of $4 million dollars, proposed as a contribution of $2 million from NV Energy with a match of $2 million from the grant. Copper wire is a known concern in the utility industry, becoming brittle and fragile over time. The current industry standard is covered (aluminum) conductor in high fire risk areas and bare aluminum for non-wildfire areas. Removing the copper wire and replacing it with covered conductor brings NV Energy's infrastructure to modern standards.

NV Energy is also seeking additional funding support for wildland fire mesh pole wrap and enhanced vegetation management to create resilient corridors along ROWs in high-risk areas. Two proposed projects will be five years in length, beginning in 2023 and continuing through 2028. The complete estimated budget for the pole wrap is $6,095,000 with NV Energy contributing 50% of the funding. The resilient corridors enhanced vegetation management would be implemented at the same time as the pole wrap. The project would begin in 2023 and continue through 2028. The estimated budget is $18,233,530, and NV Energy would be required to provide 50% of the funding. These efforts would be completed in areas within the NV Energy service territory that is at elevated risk for being impacted by the identified natural disasters.

While removing the copper wire is the first improvement, replacing it with covered conductor is the second step in improving grid resilience. This not only reduces the potential for infrastructure-initiated fires but improves overall resilience against major wind events and major winter storms. Resilient Corridors create a defensible space around utility infrastructure and decrease the likelihood that a tree or vegetation will either fall into the Companies' lines or blow in during severe weather. It also aids firefighters should a wildfire event occur to direct the fire to a cleared corridor to lessen its impact. Fire mesh pole wrap is designed to protect wood structures from burning or scorching, which could significantly weaken the poles. Fire mesh allows poles to be more resilient as a fire moves through, lowering the chance of an outage or the need for broad pole replacements.

In addition, the federal government has launched two grant opportunities that NV Energy is actively pursuing. The Infrastructure Investment and Jobs Act ("IIJA") and the Inflation Reduction Act ("IRA") both hold promise for resilience funding, especially for disadvantaged communities. NV Energy's concept paper for hardening initiatives was accepted for promotion into a full grant application. These grants also require match funding that can range from 10% to 100% or more. A request for future funding will be presented if NV Energy's applications are awarded.

6. METRICS PERFORMANCE AND MONITORING

The Commission directed NV Energy to report the metrics that appear in this Section, some by service territory and, when available, on a Wildfire Tier basis. The Companies track and present metrics in as granular a representation as possible using available information. Table 64 identifies the required metrics and includes partial data through the middle of 2022. The Companies will provide refreshed data for all of 2022 in a future filing.

Table 64. Reported Plan Metrics

ID	Metric	Metric Definition / Detail	CY 2019	CY 2020	CY 2021	First Half 2022	Measurements (Units)	Comments
M1	Number of Electric Infrastructure Caused Ignition Events and/or Fires that occur within the Vicinity of Utility Electrical Equipment	Number of ignition events: electric infrastructure caused or within the vicinity of electrical equipment **(total)**	N/A	71	44	27	# of all ignitions (Total)	
		SPPC: Number of ignition events: electric infrastructure caused or within the vicinity of electrical equipment	N/A	67	44	27	# of all ignitions (in SPPC)	
		NPC: Number of ignition events: electric infrastructure caused or within the vicinity of electrical equipment	N/A	4	0	0	# of all ignitions (in NPC)	*These ignition events are less than an acre, if not quickly suppressed in a confined space (e.g., 2'x2' area).*
M2	Number of Vegetation Contacts with Lines in Wildfire Risk Tiers	Number of vegetation contact incidents **(total)**	N/A	106	88	16	# of vegetation contacts that caused a power outage (Total)	*Vegetation contacts show contacts that resulted in an outage.* *Unavoidable tree outages are tree contacts that were from outside the maintenance zone including fall ins, broken limbs fall in, windblown vegetation, etc.*
		SPPC: Number of vegetation contact incidents	N/A	83	73	9	# of vegetation contacts that caused a power outage (in SPPC)	
		Non-Tier: *Number of vegetation contact incidents*	N/A	62	55	8	# of vegetation contacts that caused a power outage (SPPC Non-Tier)	
		Tier 1E: *Number of vegetation contact incidents*	N/A	19	6	0	# of vegetation contacts that caused a power outage (SPPC Tier 1E)	
		Tier 2: *Number of vegetation contact incidents*	N/A	0	7	0	# of vegetation contacts that caused a power outage (SPPC Tier 2)	
		Tier 3: *Number of vegetation contact incidents*	N/A	2	5	1	# of vegetation contacts that caused a power outage (SPPC Tier 3)	
		NPC: Number of vegetation contact incidents	N/A	23	15	7	# of vegetation contacts that caused a power outage (in NPC)	
		Non-Tier: *Number of vegetation contact incidents*	N/A	22	15	7	# of vegetation contacts that caused a power outage (NPC Non-Tier)	
		Tier 1E: *Number of vegetation contact incidents*	N/A	N/A	N/A	N/A	# of vegetation contacts that caused a power outage (NPC Tier 1E)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*
		Tier 2: *Number of vegetation contact incidents*	N/A	N/A	N/A	N/A	# of vegetation contacts that caused a power outage (NPC Tier 2)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*

ID	Metric	Metric Definition / Detail	CY 2019	CY 2020	CY 2021	First Half 2022	Measurements (Units)	Comments
		Tier 3: *Number of vegetation contact incidents*	N/A	1	0	0	# of vegetation contacts that caused a power outage (NPC Tier 3)	*0 Unavoidable*
M3	Number of Overhead Equipment Failures in Wildfire Risk Tiers	Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures) **(total)**	N/A	1598	1768	813	# of overhead equipment failures (Total)	*Findings determined through outage data reports of incident causation.*
		SPPC: *Number of overhead equipment failures resulting in an outage* (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)	N/A	978	932	451	# of overhead equipment failures (SPPC)	*Findings determined through outage data reports of incident causation.*
		Non-Tier: *Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)*	N/A	588	535	233	# of overhead equipment failures (SPPC Non-Tier)	*Findings determined through outage data reports of incident causation.*
		Tier 1E: *Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)*	N/A	229	250	128	# of overhead equipment failures (SPPC Tier 1E)	*Findings determined through outage data reports of incident causation.*
		Tier 2: *Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)*	N/A	115	121	77	# of overhead equipment failures (SPPC Tier 2)	*Findings determined through outage data reports of incident causation.*
		Tier 3: *Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)*	N/A	46	26	13	# of overhead equipment failures (SPPC Tier 3)	*Findings determined through outage data reports of incident causation.*
		NPC: Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)	N/A	620	836	362	# of overhead equipment failures (NPC)	*Findings determined through outage data reports of incident causation.*
		Non-Tier: *Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)*	N/A	619	811	355	# of overhead equipment failures (NPC Non-Tier)	*Findings determined through outage data reports of incident causation.*
		Tier 1E: *Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)*	N/A	N/A	N/A	N/A	# of overhead equipment failures (NPC Tier 1E)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*

ID	Metric	Metric Definition / Detail	CY 2019	CY 2020	CY 2021	First Half 2022	Measurements (Units)	Comments
		Tier 2: *Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)*	N/A	N/A	N/A	N/A	# of overhead equipment failures (NPC Tier 2)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*
		Tier 3: *Number of overhead equipment failures resulting in an outage (e.g., wire-down events, pole, overhead transformer, and overhead insulator failures)*	N/A	1	25	7	# of overhead equipment failures (NPC Tier 3)	*Findings determined through outage data reports of incident causation.*
M4	Average Time for Vegetation Clearance Permissions from Local Agencies	Average permitting time for local agency approval for performing clearance work across the service territory (**total)**	N/A	4	4	8	Average Permitting time in Business Days (Total Annual represented)	*Average permitting time for local agencies has not been tracked as there has not been extended delays with local agencies. Processing times seem to be in line with the requirements. Federal agencies, especially the USFS, have extremely long processing/approval times which can and have exceeded 18 months to receive approval of work submitted.*
		SPPC: Average permitting time for local agency approval for performing clearance work across the service territory	N/A	4	4	8	Average Permitting time in Business Days (Total Annual represented) in SPPC	*Average permitting time for local agencies has not been tracked there have not been extended delays with local agencies. Processing times seem to be in line with the requirements. Federal agencies, especially USFS, have extremely long processing/approval times which can and have exceeded 18 months to receive approval of work submitted.*
		NPC: Average permitting time for local agency approval for performing clearance work across the service territory	N/A	4	4	8	Average Permitting time in Business Days (Total Annual represented) in NPC	*Average permitting time for local agencies has not been tracked as there have not been extended delays with local agencies. Processing times seem to be in line with the requirements. Federal agencies, especially USFS, have extremely long processing/approval times which can and have exceeded 18 months to receive approval of work submitted.*
M5	Number of PSOM Events	Number of initiated PSOM events (**total)**	N/A	1	3	5	# of Events (Total)	

ID	Metric	Metric Definition / Detail	CY 2019	CY 2020	CY 2021	First Half 2022	Measurements (Units)	Comments
M6	Acreage burned by ignition events	**SPPC:** Number of initiated PSOM events	N/A	0	1	0	# of Events (SPPC)	
		NPC: Number of initiated PSOM events	N/A	1	2	5	# of Events (NPC)	
		Acreage burned by utility-involved ignition events (total)	N/A	20.7	289.1	38.5	Acreage burned (Total)	
		SPPC: Acreage burned by utility-involved ignition events	N/A	20.7	289.1	38.5	Acreage burned (SPPC)	
		NPC: Acreage burned by utility-involved ignition events	N/A	0	0	0	Acreage burned (NPC)	
M7	Value of mitigation assets destroyed by ignition events	Recorded costs of mitigation assets destroyed by ignition events **(total)**	N/A	96795	0	0	($) Cost of destroyed NDPP mitigation assets (Total)	
		SPPC: Recorded costs of mitigation assets destroyed by ignition events	N/A	58077	0	0	($) Cost of destroyed NDPP mitigation assets (SPPC)	
		NPC: Recorded costs of mitigation assets destroyed by ignition events	N/A	38718	0	0	($) Cost of destroyed NDPP mitigation assets (NPC)	
M8	Value of all assets and structures destroyed by ignition events	Recorded costs of all other assets and structures destroyed by ignition events **(total)**	N/A	19359	57225	53431	($) Cost of other Assets and Structures (Total)	
		SPPC: Recorded costs of all other assets and structures destroyed by ignition events (total)	N/A	19359	57225	53431	($) Cost of other Assets and Structure (SPPC)	
		NPC: Recorded costs of all other assets and structures destroyed by ignition events (total)	N/A	0	0		($) Cost of other Assets and Structure (NPC)	
M9	Duration of power outage during PSOM events in minutes/hours;	Duration (minutes/hours) of PSOM events (**total)**	N/A	22 hrs. 51 minutes	37 hours 4 minutes	101 hours 18 minutes	# (duration) time of PSOM event (Total)	
		SPPC: Duration (minutes/hours) of PSOM events	N/A	0	0	0	# (duration) time of PSOM event (SPPC)	

ID	Metric	Metric Definition / Detail	CY 2019	CY 2020	CY 2021	First Half 2022	Measurements (Units)	Comments
		NPC: Duration (minutes/hours) of PSOM events	N/A	22 hours 51 minutes	25 hours 21 minutes	101 hours 18 minutes	# (duration) time of PSOM event (NPC)	*Single event within Tier 3 in NPC*
M10	Number of minutes/hours to re-energize after hazardous conditions are cleared during a PSOM event	Duration (minutes/hours) to re-energize after "all clear" noticed received during PSOM events **(total)**	N/A	2 hrs. 19 minutes	7 hours 54 minutes	13 hours 13 minutes	# in time for Duration to re-energize after PSOM activation/circuit shutoff (Total)	*Duration accounts for the time to patrol the affected lines and then to safely re-energize.*
		SPPC: Duration (minutes/hours) to re-energize after "all clear" noticed received during PSOM quarterly	N/A	0	1 hour 36 minutes	0	# in time for Duration to re-energize after PSOM activation/circuit shutoff (SPPC)	
		NPC: Duration (minutes/hours) to re-energize after "all clear" noticed received during PSOM quarterly	N/A	2 hrs. 19 minutes	6 hours 18 minutes	13 hours 13 minutes	# in time for Duration to re-energize after PSOM activation/circuit shutoff (NPC)	*Duration accounts for the time to patrol the affected lines and then to safely re-energize.*
M11	Number of unplanned outages outside of PSOM events;	Number of unplanned outages (excluding momentaries) that are not PSOM events **(total)**	N/A	5574	5485	2520	# of Unplanned Outages (Total)	
		SPPC: Number of unplanned outages (excluding momentaries) that are not PSOM events	N/A	2965	2788	1273	# of Unplanned Outages (SPPC)	
		NPC: Number of unplanned outages (excluding momentaries) that are not PSOM events	N/A	2609	2697	1247	# of Unplanned Outages (NPC)	
M12	Duration of unplanned outages in minutes/hours outside PSOM events	Duration (minutes) of unplanned outages (excluding momentaries) that are not PSOM events **(total)**	N/A	877580	941050	436396	# (duration) time for Unplanned Outage (Total)	
		SPPC: Duration (minutes/hours) of unplanned outages (excluding momentaries) that are not PSOM events	N/A	442153	484567	212686	# (duration) time for Unplanned Outage (SPPC)	
		NPC: Duration (minutes/hours) of unplanned outages (excluding momentaries) that are not PSOM events	N/A	435427	456482	223710	# (duration) time for Unplanned Outage (NPC)	
M13	Number of community emergency evacuations	Number of (utility-owned infrastructure involved in fire incidents) wildfire evacuations **(total)**	N/A	3	7	0	# of wildfire-related evacuations (Total)	*Q2 2021 - Jacks Valley Fire (Gardnerville), Petrilla Fire (Reno), Elko Fire (Elko)*
		SPPC: Number of (utility-owned infrastructure involved in fire incidents) wildfire evacuations	N/A	2	7	0	# of wildfire-related evacuations (SPPC)	
		NPC: Number of (utility-owned infrastructure involved in fire incidents) wildfire evacuations	N/A	1	0	0	# of wildfire-related evacuations (NPC)	
M14	Total increased cost incurred per customer due	Additional costs incurred divided by total customer count due to both NDPP mitigation activities and utility-involved ignition events **(total)**	7.843985739	38.0800658	33.95538	18.17171	$/Total NVE customer count in that calendar year (Total)	

ID	Metric	Metric Definition / Detail	CY 2019	CY 2020	CY 2021	First Half 2022	Measurements (Units)	Comments
	to wildfire mitigation and ignition events	**SPPC**: Additional costs incurred divided by total customer count due to both NDPP mitigation activities and utility-involved ignition events (total)[29]	7.159887867	34.92603698	29.599117	16.27575	$/Total NVE customer count in that calendar year (SPPC)	
		NPC: Additional costs incurred divided by customer total count due to both NDPP mitigation activities and utility-involved ignition events (total)	0.684097872	3.154028816	4.356263	1.895956	$/Total NVE customer count in that calendar year (NPC)	
M15	Increased cost per customer due to wildfire mitigation	Additional costs incurred divided by total customer count due to all NDPP mitigation activities **(total)**	7.843985739	38.06558593	33.955379	17.34438	$/Total NVE customer count in that calendar year (Total)	
		SPPC: Additional costs incurred divided by total customer count due to all NDPP mitigation activities (total)	7.159887867	34.91155711	29.599116	16.27576	$/Total NVE customer count in that calendar year (SPPC)	
		NPC: Additional costs incurred divided by total customer count due to all NDPP mitigation activities (total)	0.684097872	3.154028816	4.356263	1.068622	$/Total NVE customer count in that calendar year (NPC)	
M16	Increased cost per customer due to ignition events	Additional costs (outside of NDPP) incurred by reportable, significant ignition events, divided by total customer count **(total)**	0	0.014479869	0.042377	0.035037	$/Total NVE customer count in that calendar year (Total)	*Ignition events only caused by NVE facilities (costs associated with that damage/loss)*
		SPPC: Additional costs (outside of NDPP) incurred by reportable, significant ignition events, divided by total customer count (total)	0	0.014479869	0.042377	0.035037	$/Total NVE customer count in that calendar year (SPPC)	
		NPC: Additional costs (outside of NDPP) incurred by reportable, significant ignition events, divided by total customer count (total)	0	0	0	0	$/Total NVE customer count in that calendar year (NPC)	
M17	Total increased cost per risk area customer due to wildfire mitigation and ignition event	Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to ignition and NDPP mitigation activities **(total)**	7.843985739	38.0800658	33.997756	17.37941	$/Total NVE customer count in that calendar year (Total)	
		SPPC Non-Tier: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to ignition and NDPP mitigation activities*	1.162960334	1.861974665	6.270159 5	3.365007	$ in SPPC Non-Tier Spend divided by Total NVE customer count in that calendar year (total)	*Non-Tier may consider work nonspecific to Tiered areas or general costs not categorized*
		SPPC Tier 1E: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to ignition and NDPP mitigation activities*	0.41031871	9.554024266	9.772275	3.590841	$ in SPPC Tier 1E Spend divided by Total NVE customer count in that calendar year (total)	

[29] While the evidence currently available indicates that the Pinehaven fire was not ignited by NV Energy equipment, but rather by a fire escaping a campfire ring during high winds, NV Energy has included it in the calculation for M14 because the fire affected NV Energy infrastructure and had a material effect on the cost to NV Energy's customers.

ID	Metric	Metric Definition / Detail	CY 2019	CY 2020	CY 2021	First Half 2022	Measurements (Units)	Comments
		SPPC Tier 2: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to ignition and NDPP mitigation activities*	0.618256803	7.943941102	5.590335	3.208103	$ in SPPC Tier 2 Spend divided by Total NVE customer count in that calendar year (total)	
		SPPC Tier 3: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to ignition and NDPP mitigation activities*	4.968352019	15.56609695	8.0087235	6.146841	$ in SPPC Tier 3 Spend divided by Total NVE customer count in that calendar year (total)	
		NPC Non-Tier: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to ignition and NDPP mitigation activities*	0.324265771	2.430979797	3.469097	0.534311	$ in NPC Non-Tier Spend divided by Total NVE customer count in that calendar year (total)	*Non-Tier may consider work nonspecific to Tiered areas or general costs not categorized*
		NPC Tier 1E: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to ignition and NDPP mitigation activities*	N/A	N/A	N/A	N/A	$ in NPC Tier 1E Spend divided by Total NVE customer count in that calendar year (total)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*
		NPC Tier 2: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to ignition and NDPP mitigation activities*	N/A	N/A	N/A	N/A	$ in NPC Tier 2 Spend divided by Total NVE customer count in that calendar year (total)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*
		NPC Tier 3: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to ignition and NDPP mitigation activities*	0.359832101	0.723049019	0.887166	0.534311	$ in NPC Tier 3 Spend divided by Total NVE customer count in that calendar year (total)	
M18	Increased cost per risk area customer due to wildfire mitigation	Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to NDPP mitigation activities **(total)**	7.843985739	38.06558593	0.042377	0.035036	$/Total NVE customer count in that calendar year within all Wildfire Tiers (Total)	
		SPPC Non-Tier: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to NDPP mitigation activities*	1.162960334	1.847494795	0.0311375	0.021231	$ in SPPC Non-Tier Spend divided by Total NVE customer count in that calendar year (total)	
		SPPC Tier 1E: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to NDPP mitigation activities*	0.41031871	9.554024266	0	0.003867	$ in SPPC Tier 1E Spend divided by Total NVE customer count in that calendar year (total)	
		SPPC Tier 2: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to NDPP mitigation activities*	0.618256803	7.943941102	0	0.009939	$ in SPPC Tier 2 Spend divided by Total NVE customer count in that calendar year (total)	
		SPPC Tier 3: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to NDPP mitigation activities*	4.968352019	15.56609695	0.0112395	0	$ in SPPC Tier 3 Spend divided by Total NVE customer count in that calendar year (total)	

ID	Metric	Metric Definition / Detail	CY 2019	CY 2020	CY 2021	First Half 2022	Measurements (Units)	Comments
		NPC Non-Tier: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to NDPP mitigation activities*	0.324265771	2.430979797	0	0	$ in NPC Non-Tier Spend divided by Total NVE customer count in that calendar year (total)	
		NPC Tier 1E: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to NDPP mitigation activities*	N/A	N/A	N/A	N/A	$ in NPC Tier 1E Spend divided by Total NVE customer count in that calendar year (total)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*
		NPC Tier 2: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to NDPP mitigation activities*	N/A	N/A	N/A	N/A	$ in NPC Tier 2 Spend divided by Total NVE customer count in that calendar year (total)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*
		NPC Tier 3: *Total increased cost per risk area (Wildfire Tiers and Non-Tiered areas) customer due to NDPP mitigation activities*	0.359832101	0.723049019	0.887166	0.534311	$ in NPC Tier 3 Spend divided by Total NVE customer count in that calendar year (total)	
M19	Increased cost per risk area customer due to ignition events	Total additional/increased cost per risk area (Wildfire Tiers) customer due to ignition events **(total)**	0	0.014479869	0.042377	0.035036	$/Total NVE customer count in that calendar year within all Wildfire Tiers (Total)	
		SPPC Non-Tier: *Total additional/increased cost per risk area (Wildfire Tiers) customer due to ignition events*	0	0.014479869	0.0311375	0.021231	$ in SPPC Non-Tier Spend divided by Total NVE customer count in that calendar year (total)	*Non-Tier may consider work nonspecific to Tiered areas or general costs not categorized*
		SPPC Tier 1E: *Total additional/increased cost per risk area (Wildfire Tiers) customer due to ignition events*	0	0	0	0.003867	$ in SPPC Tier 1E Spend divided by Total NVE customer count in that calendar year (total)	
		SPPC Tier 2: *Total additional/increased cost per risk area (Wildfire Tiers) customer due to ignition events*	0	0	0	0.009939	$ in SPPC Tier 2 Spend divided by Total NVE customer count in that calendar year (total)	
		SPPC Tier 3: *Total additional/increased cost per risk area (Wildfire Tiers) customer due to ignition events*	0	0	0.0112395	0	$ in SPPC Tier 3 Spend divided by Total NVE customer count in that calendar year (total)	
		NPC Non-Tier: *Total additional/increased cost per risk area (Wildfire Tiers) customer due to ignition events*	0	0	0	0	$ in NPC Non-Tier Spend divided by Total NVE customer count in that calendar year (total)	*Non-Tier may consider work nonspecific to Tiered areas or general costs not categorized*
		NPC Tier 1E: *Total additional/increased cost per risk area (Wildfire Tiers) customer due to ignition events*	N/A	N/A	N/A	N/A	$ in NPC Tier 1E Spend divided by Total NVE customer count in that calendar year (total)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*

ID	Metric	Metric Definition / Detail	CY 2019	CY 2020	CY 2021	First Half 2022	Measurements (Units)	Comments
		NPC Tier 2: *Total additional/increased cost per risk area (Wildfire Tiers) customer due to ignition events*	N/A	N/A	N/A	N/A	$ in NPC Tier 2 Spend divided by Total NVE customer count in that calendar year (total)	*N/A - Currently, no area is mapped as Tier 1E or Tier 2 within NPC*
		NPC Tier 3: *Total additional/increased cost per risk area (Wildfire Tiers) customer due to ignition events*	0	0	0	0	$ in NPC Tier 3 Spend divided by Total NVE customer count in that calendar year (total)	
M20	Customer survey feedback on awareness prior to an event and information given at the conclusion of a PSOM or emergency community evacuation event;	Collected feedback from surveys issued prior to the wildfire season as well as concluding an emergency evacuation or PSOM event **(total)**	N/A	N/A	0		# of Feedback collected from Surveys (Total)	
		SPPC: Collected feedback from surveys issued prior to the wildfire season as well as concluding an emergency evacuation or PSOM event (total)	N/A	N/A	0		# of Feedback collected from Surveys (SPPC)	
		NPC: Collected feedback from surveys issued prior to the wildfire season as well as concluding an emergency evacuation or PSOM event (total)	N/A	N/A	0		# of Feedback collected from Surveys (NPC)	
M21	Number of customer complaints following a PSOM or emergency community evacuation event	Number of recorded customer complaints following a PSOM or emergency evacuation event **(total)**	N/A	2	0		# of Customer complaints (due to utility-equipment involved wildfire incident evacuations) (Total)	
		SPPC: Number of recorded customer complaints following a PSOM or emergency evacuation event (total)	N/A	0	0		# of Customer complaints (due to utility-equipment involved wildfire incident evacuations) (SPPC)	
		NPC: Number of recorded customer complaints following a PSOM or emergency evacuation event (total)	N/A	2	0		# of Customer complaints (due to utility-equipment involved wildfire incident evacuations) (NPC)	

7. RESOURCE SUFFICIENCY

The resource sufficiency category identifies resources of sufficient types and amounts to successfully support and implement the Plan. Resource sufficiency includes fully dedicated NDPP personnel labor charges (when not specifically supporting other programs), the addition of a senior engineer for supporting general NDPP standards, technology, and program support. There is also funding for the addition of a corporate communications specialist for external communications in the NDPP. This position will be responsible for public outreach and communications regarding NDPP projects, programs, and potential outages related to system hardening. This position will also support the emergency response organization and perform the duties of public information officer when required. The Companies will also need a contracted telecommunications technician for supporting the COW's, radios, mobile devices, iPads, and the amateur radio emergency services associated with the NDPP.

This category includes costs associated with regulatory filings including publishing notices, legal support, materials, and supplies, telecommunications equipment, travel expenses, and the contracted resources to assist with regulatory filings and NDPP-related grants management. This also includes costs associated with participation in the International Wildfire Risk Mitigation Consortium ("IWRMC"). The IWRMC is a is an industry-sponsored collaborative organization designed to facilitate the sharing of wildfire risk mitigation insights and discovery of innovative and unique utility wildfire practices.

The majority of the costs are identified as OMAG with some capital costs for iPads and equipment for NDPP personnel to view mapping, weather, work management access, PSOMs, and remote connectivity to network systems.

7.1. RESOURCE SUFFICIENCY BUDGET

Table 65 below lists the resource sufficiency budget for this Triennial Plan.

Table 65. Resource Sufficiency Triennial Budget

OMAG	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Resource Sufficiency	3,820,320	1,200,000	1,272,000	1,348,320
NPC	631,358	198,316	210,215	222,827
SPPC	3,188,962	1,001,684	1,061,785	1,125,493

Capital	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
Resource Sufficiency	$ 45,790	$ 11,854	$ 15,248	$ 18,689
NPC	$ 35,467	$ 11,854	$ 11,807	$ 11,807
SPPC	$ 10,323		$ 3,441	$ 6,882

8. FINANCIALS

This Section contains financials specific to project, programs, and initiatives.

8.1. PLAN IMPLEMENTATION COSTS 2024-2026

Table 66. OMAG Summary

NVE - OMAG	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
NPC	**33,483,214**	**13,924,794**	**9,998,758**	**9,559,662**
Inspections, Patrols, Corrections	4,789,432	1,579,436	1,456,184	1,753,812
Public Safety Outage Management	4,092,679	1,206,489	1,356,087	1,530,103
Risk-Based Approach	3,199,338	1,026,342	1,065,787	1,107,210
Situational Awareness	268,667	68,487	92,971	107,209
System Hardening	2,017,521	639,975	671,974	705,572
Vegetation Management	19,115,577	9,404,065	5,355,756	4,355,756
SPPC	**168,477,977**	**55,845,311**	**55,071,142**	**57,561,524**
Inspections, Patrols, Corrections	26,096,169	6,800,261	8,931,361	10,364,547
Public Safety Outage Management	3,690,036	1,080,200	1,222,040	1,387,796
Risk-Based Approach	10,433,599	3,328,652	3,474,999	3,629,948
Situational Awareness	1,520,819	457,638	506,377	556,804
System Hardening	10,270,009	3,205,625	3,217,121	3,847,263
Vegetation Management	116,467,345	40,972,935	37,719,244	37,775,166
Grand Total	**201,961,191**	**69,770,105**	**65,069,900**	**67,121,185**

NVE - OMAG	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
NPC	**33,483,214**	**13,924,794**	**9,998,758**	**9,559,662**
Inspections, Patrols, Corrections	**4,789,432**	**1,579,436**	**1,456,184**	**1,753,812**
Circuit Resiliency	3,929,810	1,406,768	1,116,273	1,406,769
Inspections, Patrols, Corrections	859,622	172,668	339,911	347,043
Public Safety Outage Management	**4,092,679**	**1,206,489**	**1,356,087**	**1,530,103**
PSOM	4,092,679	1,206,489	1,356,087	1,530,103
Risk-Based Approach	**3,199,338**	**1,026,342**	**1,065,787**	**1,107,210**
Advanced Technologies	1,419,250	458,026	472,788	488,436
Emergency Response	1,148,730	370,000	382,784	395,946
Resource Sufficiency	631,358	198,316	210,215	222,827
Situational Awareness	**268,667**	**68,487**	**92,971**	**107,209**
Weather Stations	69,504	22,487	23,161	23,856
Wildfire Cameras	199,163	46,000	69,810	83,353
System Hardening	**2,017,521**	**639,975**	**671,974**	**705,572**
Fire Mesh	2,017,521	639,975	671,974	705,572
Vegetation Management	**19,115,577**	**9,404,065**	**5,355,756**	**4,355,756**
Tree trimming, Pole Grubbing, Fuel Inventory	19,115,577	9,404,065	5,355,756	4,355,756
SPPC	**168,477,977**	**55,845,311**	**55,071,142**	**57,561,524**
Inspections, Patrols, Corrections	**26,096,169**	**6,800,261**	**8,931,361**	**10,364,547**
Inspections, Patrols, Corrections	26,096,169	6,800,261	8,931,361	10,364,547
Public Safety Outage Management	**3,690,036**	**1,080,200**	**1,222,040**	**1,387,796**
PSOM	3,690,036	1,080,200	1,222,040	1,387,796
Risk-Based Approach	**10,433,599**	**3,328,652**	**3,474,999**	**3,629,948**
Advanced Technologies	5,275,661	1,702,582	1,757,456	1,815,623
Emergency Response	1,968,976	624,386	655,758	688,833
Resource Sufficiency	3,188,962	1,001,684	1,061,785	1,125,493
Situational Awareness	**1,520,819**	**457,638**	**506,377**	**556,804**
Weather Stations	357,425	115,638	119,107	122,680
Wildfire Cameras	1,163,394	342,000	387,270	434,124
System Hardening	**10,270,009**	**3,205,625**	**3,217,121**	**3,847,263**
Fire Mesh	1,323,494	419,824	440,815	462,856
Lightning arrestors	170,000	55,000	57,000	58,000
Non-expulsion fuses - fault tamers	8,776,514	2,730,801	2,719,306	3,326,407
Vegetation Management	**116,467,345**	**40,972,935**	**37,719,244**	**37,775,166**
Tree trimming, Pole Grubbing, Fuel Inventory	116,467,345	40,972,935	37,719,244	37,775,166
Grand Total	**201,961,191**	**69,770,105**	**65,069,900**	**67,121,185**

Table 67. Capital Summary

NVE - Capital	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
NPC	**43,493,163**	**13,261,534**	**15,977,636**	**14,253,993**
Inspections & Corrections	5,353,840	1,456,676	1,856,784	2,040,380
Risk Based Approach	35,467	11,854	11,807	11,807
Situational Awareness	389,211	125,300	129,686	134,225
System Hardening	37,714,645	11,667,704	13,979,360	12,067,581
SPPC	**127,604,943**	**48,262,078**	**43,670,386**	**35,672,479**
Inspections & Corrections	9,764,401	2,616,201	3,989,534	3,158,666
Risk Based Approach	10,323		3,441	6,882
Situational Awareness	1,450,918	467,100	483,449	500,369
System Hardening	116,379,301	45,178,777	39,193,962	32,006,562
Total	**171,098,107**	**61,523,613**	**59,648,022**	**49,926,472**

NVE - Capital	2024-2026 Budget	2024 Forecast	2025 Forecast	2026 Forecast
NPC	**43,493,163**	**13,261,534**	**15,977,636**	**14,253,993**
Inspections & Corrections	**5,353,840**	**1,456,676**	**1,856,784**	**2,040,380**
Circuit Resiliency	3,525,126	1,181,925	1,161,276	1,181,925
Pole Replacements	1,828,714	274,751	695,508	858,455
Risk Based Approach	**35,467**	**11,854**	**11,807**	**11,807**
Resource Sufficiency	35,467	11,854	11,807	11,807
Situational Awareness	**389,211**	**125,300**	**129,686**	**134,225**
Wildfire Cameras	389,211	125,300	129,686	134,225
System Hardening	**37,714,645**	**11,667,704**	**13,979,360**	**12,067,581**
Copper Wire	8,945,067	3,740,585	2,557,485	2,646,997
Line Rebuilds - Distribution	15,906,102	2,750,000	7,594,065	5,562,037
Lines Ruggedization	10,958,376	3,472,019	3,727,810	3,758,547
Undergrounding	1,905,100	1,705,100	100,000	100,000
SPPC	**127,604,943**	**48,262,078**	**43,670,386**	**35,672,479**
Inspections & Corrections	**9,764,401**	**2,616,201**	**3,989,534**	**3,158,666**
Pole Replacements	9,764,401	2,616,201	3,989,534	3,158,666
Risk Based Approach	**10,323**		**3,441**	**6,882**
Resource Sufficiency	10,323		3,441	6,882
Situational Awareness	**1,450,918**	**467,100**	**483,449**	**500,369**
Wildfire Cameras	1,450,918	467,100	483,449	500,369
System Hardening	**116,379,301**	**45,178,777**	**39,193,962**	**32,006,562**
Copper Wire	10,379,675	4,356,147	4,148,528	1,875,000
Line Rebuilds - Distribution	12,577,524	4,902,524	4,775,000	2,900,000
Line Rebuilds - Transmission	3,707,360	244,975	1,451,709	2,010,676
Non-Expulsion Fuses	12,888,798	3,826,555	5,268,792	3,793,451
Reclosers	2,900,000	2,900,000		
Substation Hardening	14,411,799	4,966,931	4,475,851	4,969,017
Tree Attachment Removals	6,367,254	2,060,000	2,121,800	2,185,454
Undergrounding	53,146,891	21,921,645	16,952,281	14,272,965
Total	**171,098,107**	**61,523,613**	**59,648,022**	**49,926,472**

APPENDIX

This Section contains maps, reports, and other information related to the NDPP:

Appendix A: Natural Disaster Risk Maps

Appendix B: REAX Wildfire Risk Assessment Reports for new Tier 3 and Tier 1

Appendix C: PSOM Plan

Appendix D: USFS Resilience Corridors Decision Memo

Appendix E: Letters of Support

Appendix F: Underground Prioritization Maps

Appendix G: Critical Crossings Table

Appendix H: Copper Wire Variance Table

Appendix J: Overhead Rebuilds Maps

Appendix I: NDPP Tier 3 Undergrounding Plan

Appendix K: Table of Abbreviations

APPENDIX A. NATURAL DISASTER HEIGHTENED THREAT AREA MAPS

Maps for heightened threat risk are presented in this Appendix:

1. Wildfire
2. Wind Occurrences
3. Winter Storms
4. Thunderstorms and Microbursts
5. Monsoons and Flooding
6. Heat Waves and Drought
7. Earthquakes
8. Landslides and Avalanches

A.1 WILDFIRE THREATS

Figure A1. NV Energy Designated Tier Areas – Statewide

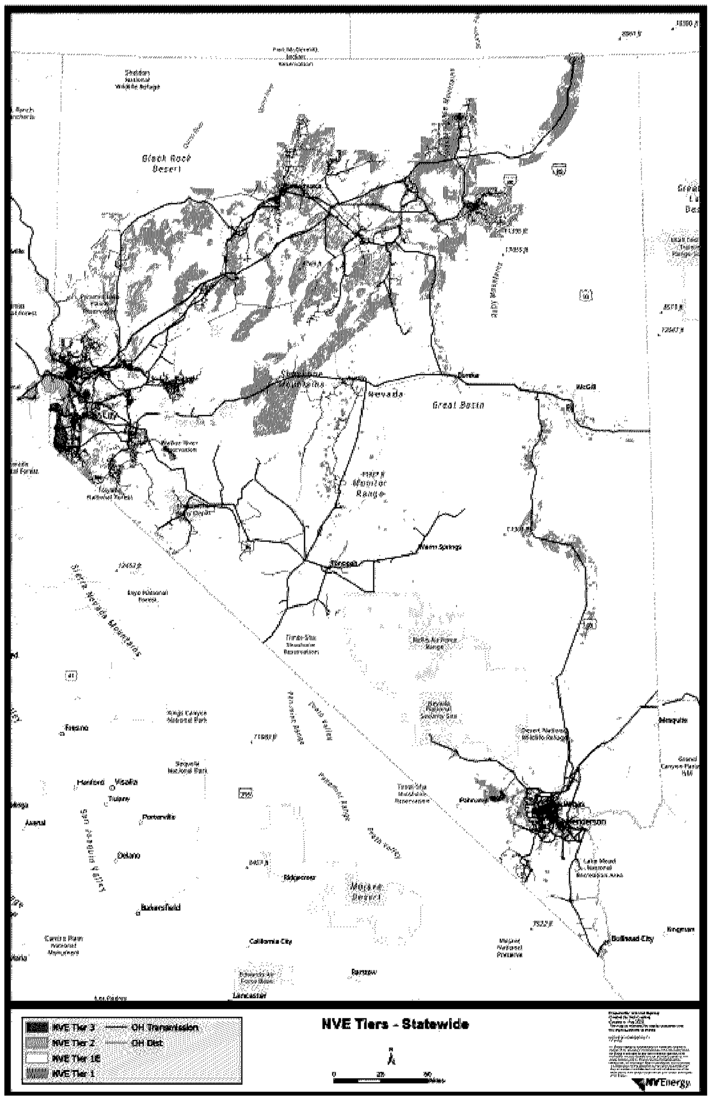


Figure A2. NV Energy Designated Tier Areas – Las Vegas

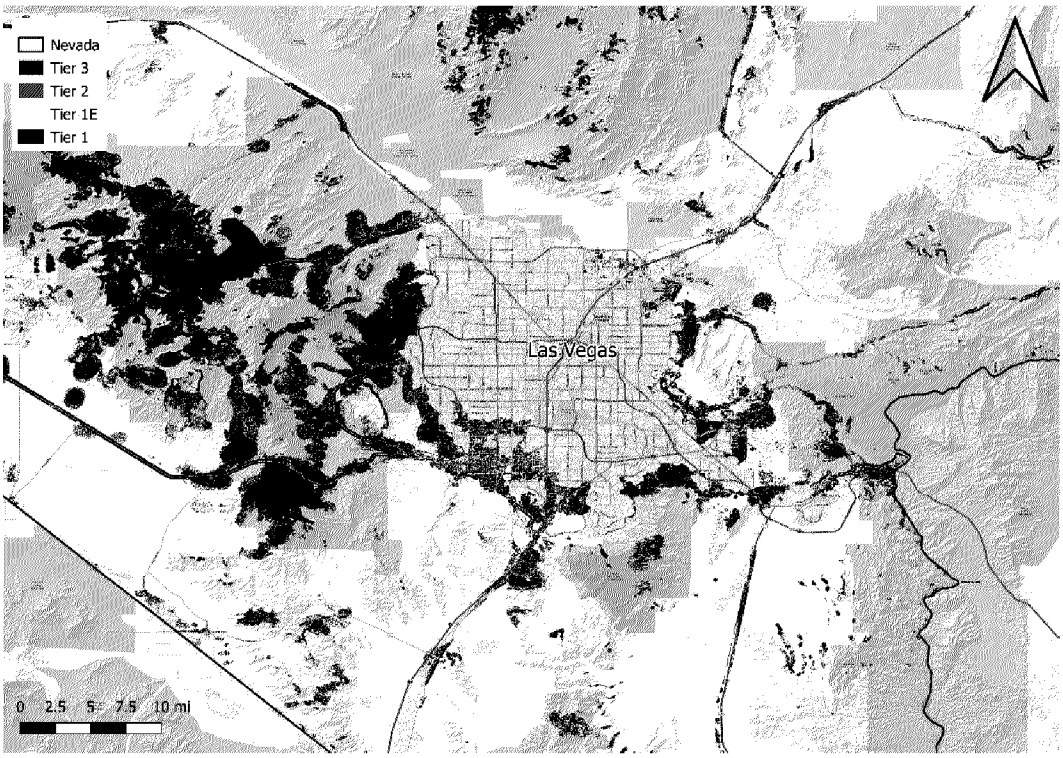


Figure A3. NV Energy Designated Tier Areas – Reno

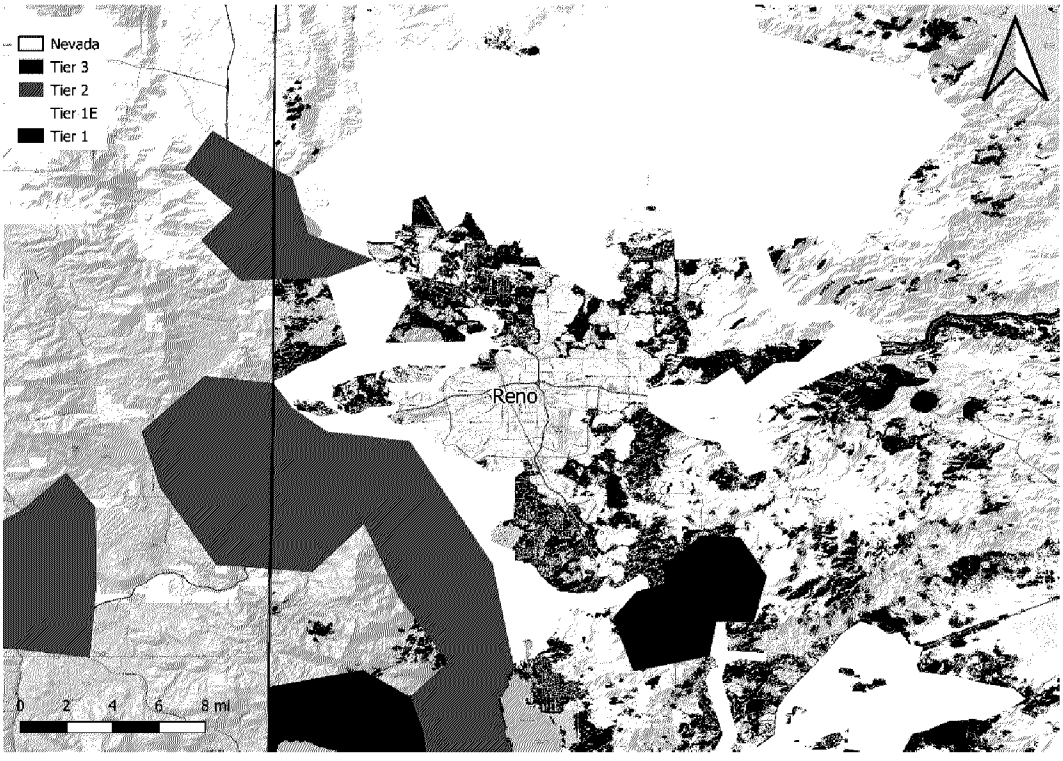


Figure A4. NV Energy Designated Tier Areas – Winnemucca

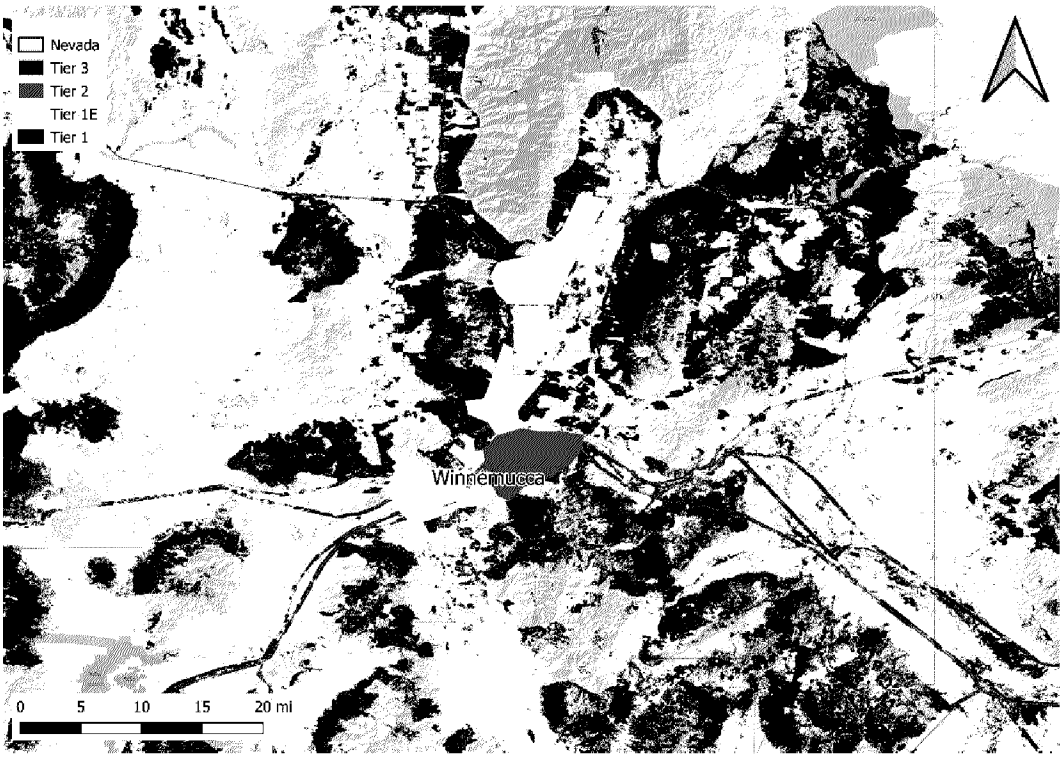


Figure A5. NV Energy Designated Tier Areas - Elko

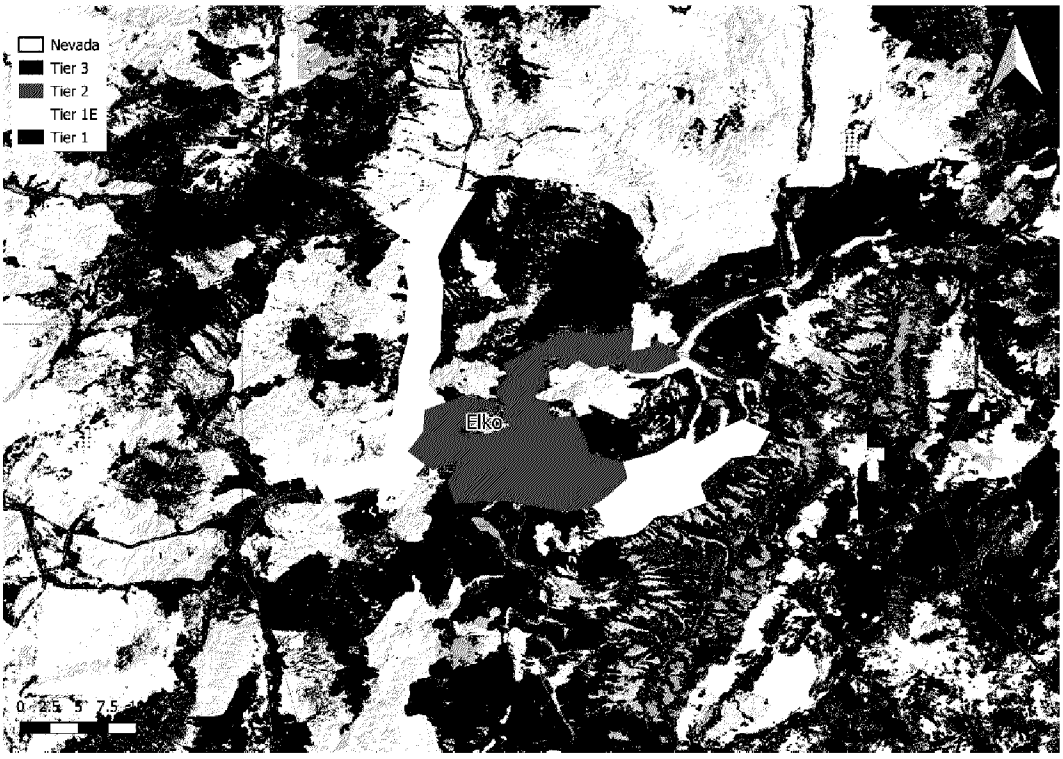


Figure A6. Historical Fire Ignition Locations Error! Bookmark not defined. **Relative to NV Energy's Current and Proposed Fire Risk Tiers.**

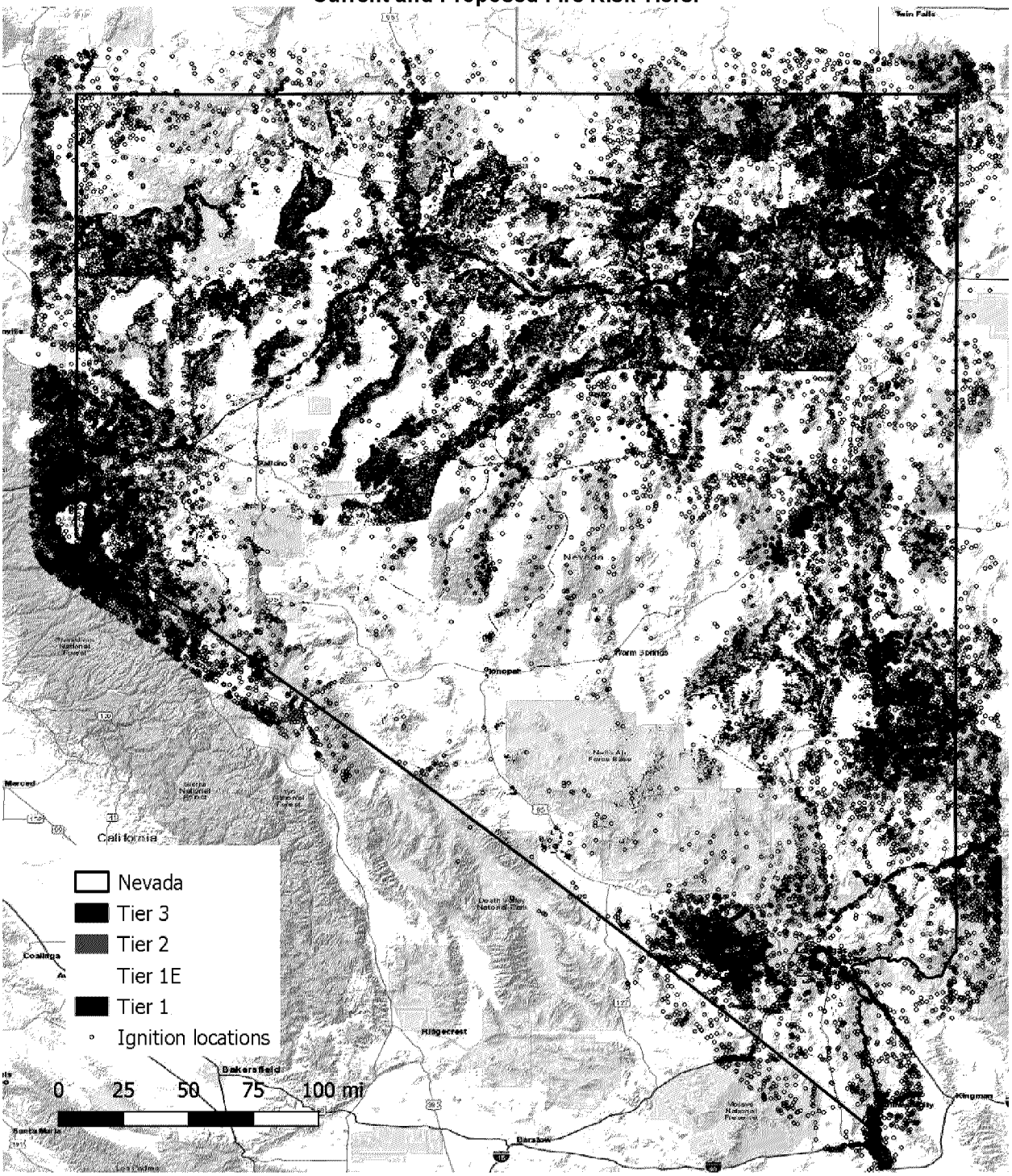
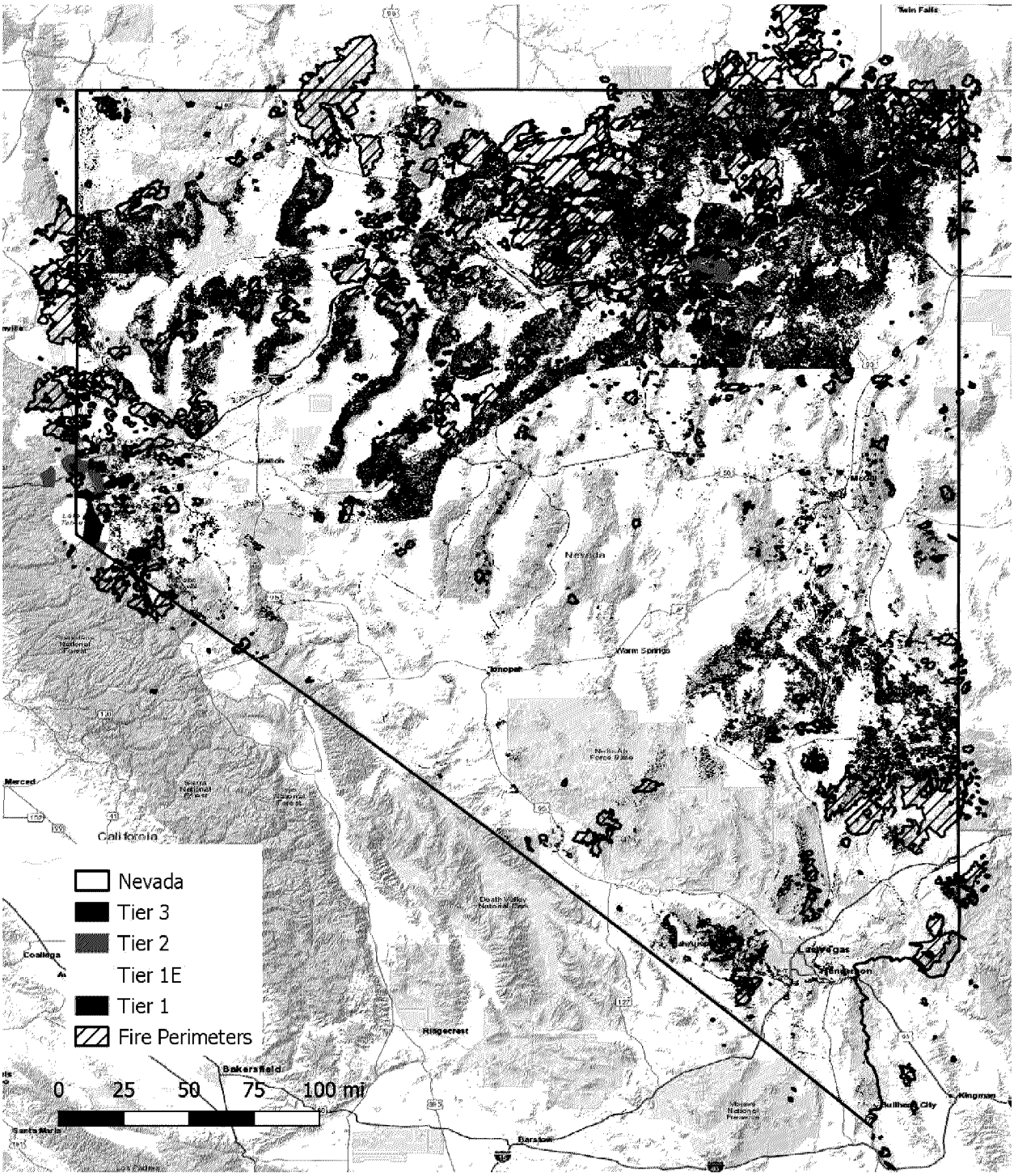


Figure A7. Historical Fire Perimeters Error! Bookmark not defined. **Relative to NV Energy's Current and Proposed Fire Risk Tiers.**



A.2 WIND OCCURRENCES

Wind risk maps appear in this Section.

Figure A8. High Wind Risks Legend

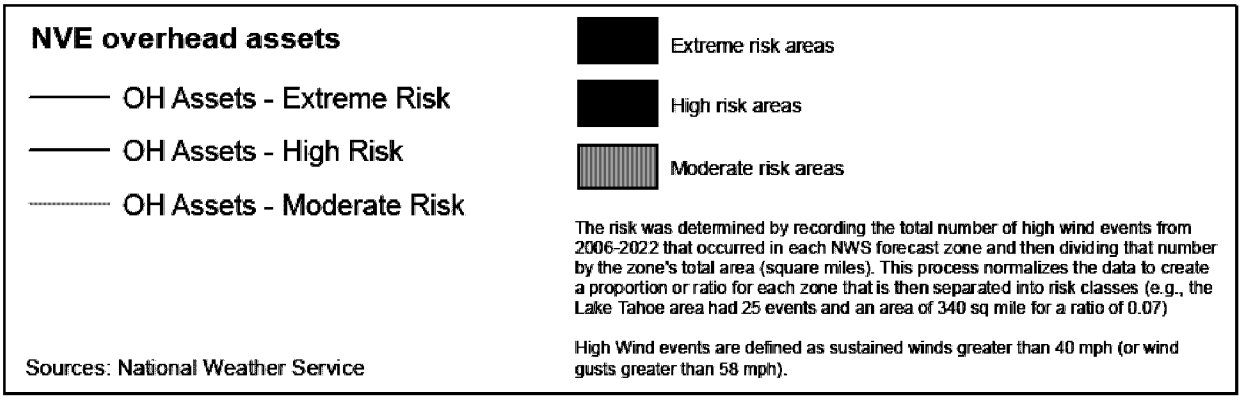


Figure A9. NVE Asset Risk High Wind Events

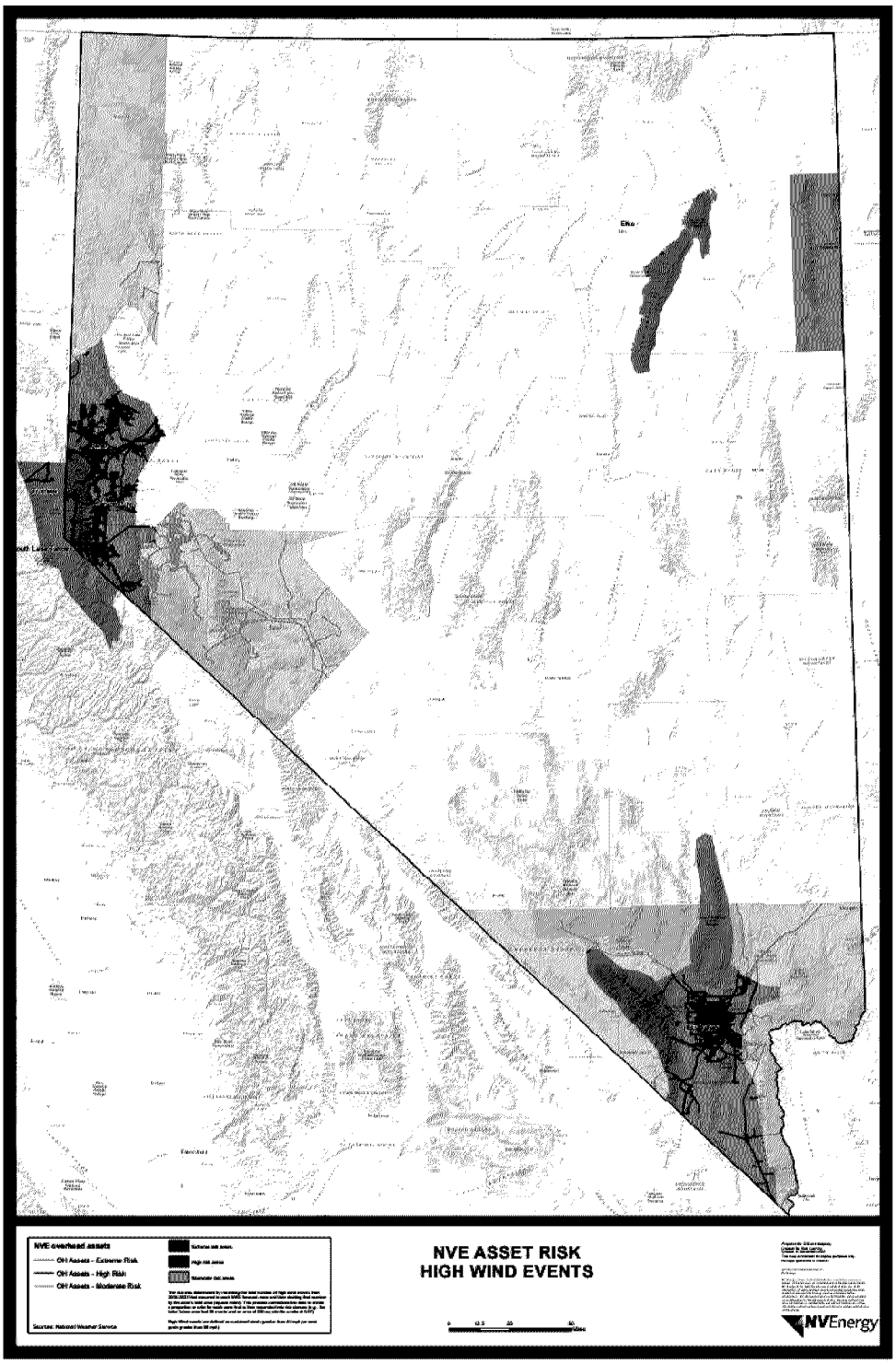


Figure A10. High Wind Risk Western Nevada

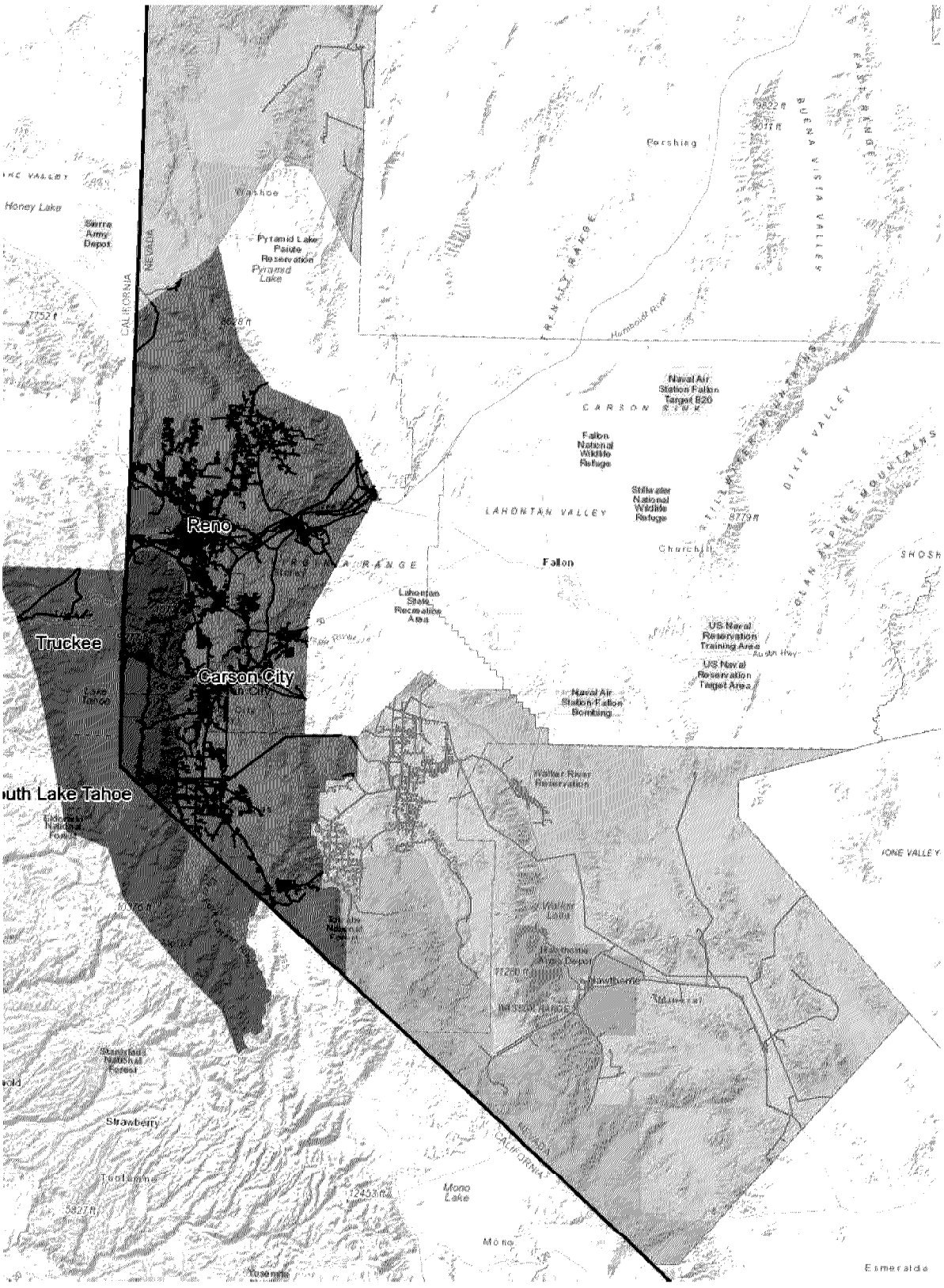
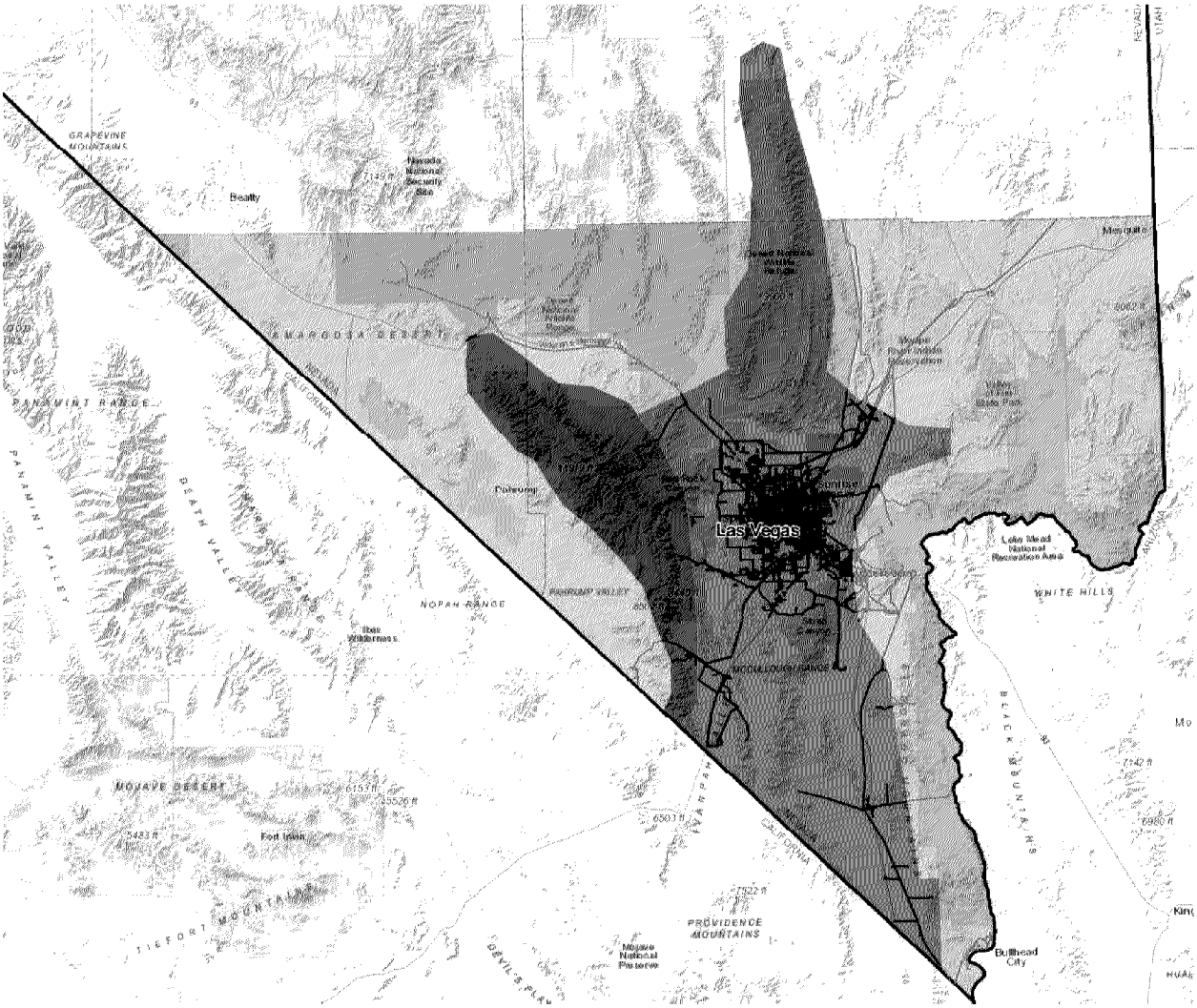


Figure A11. High Wind Risk Southern Nevada



A.3 WINTER STORMS

Winter storm risk maps appear in this Section.

Figure A12. Winter Storm Risks Legend

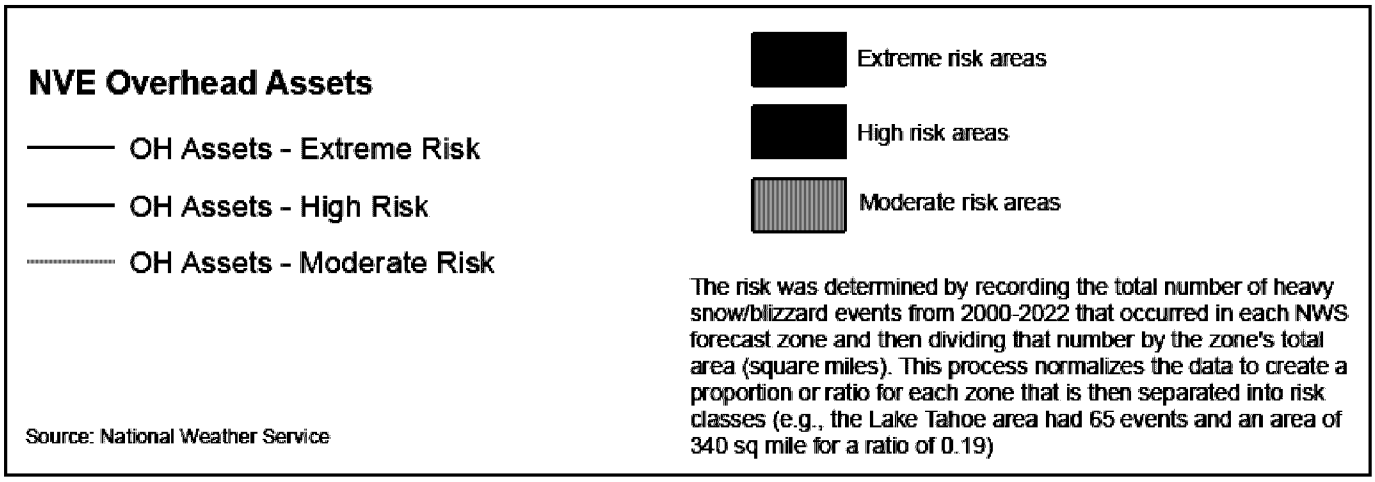


Figure A13. Winter Storm Risk

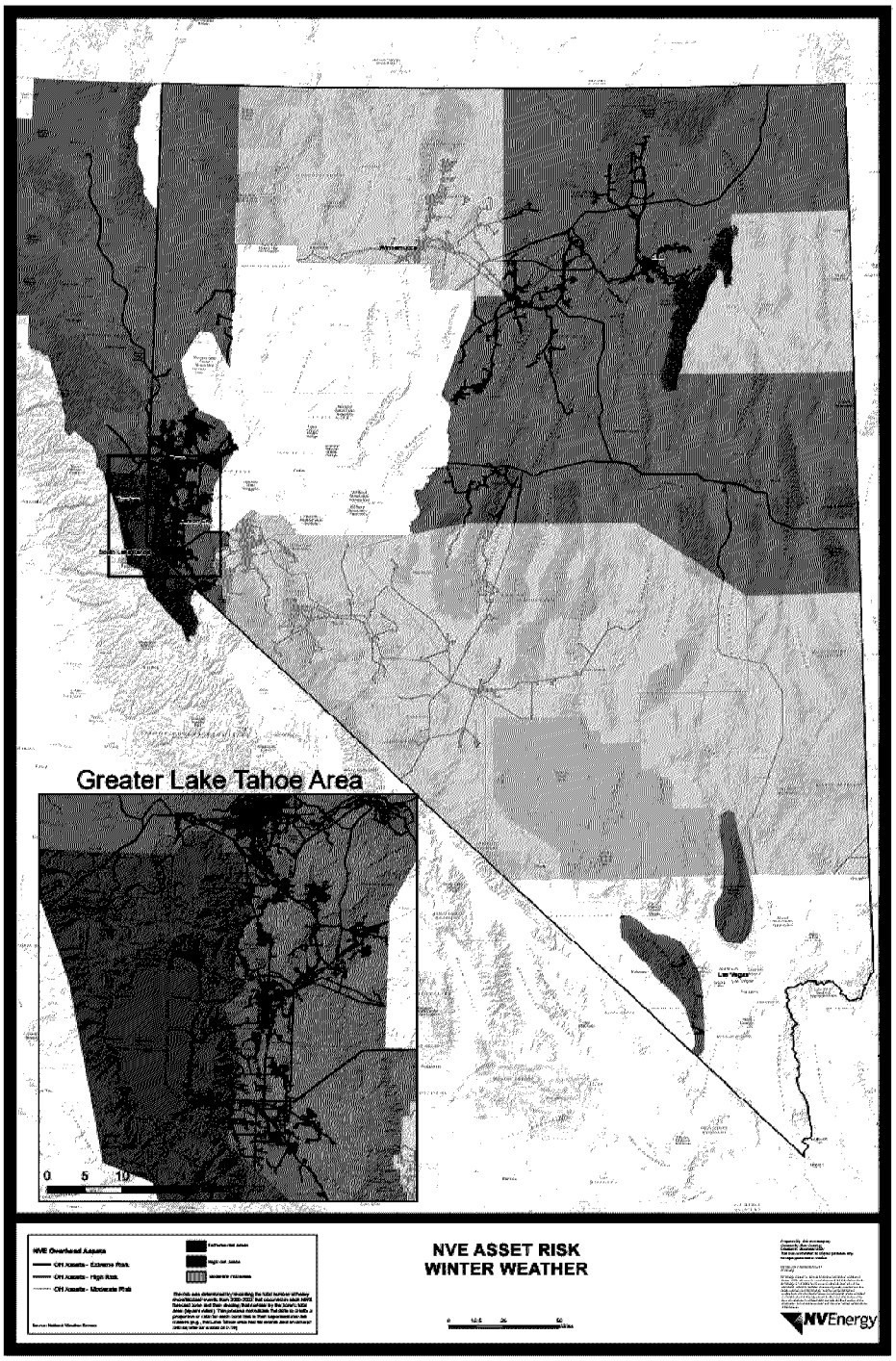


Figure A14. Winter Storm Risk Greater Lake Tahoe Area

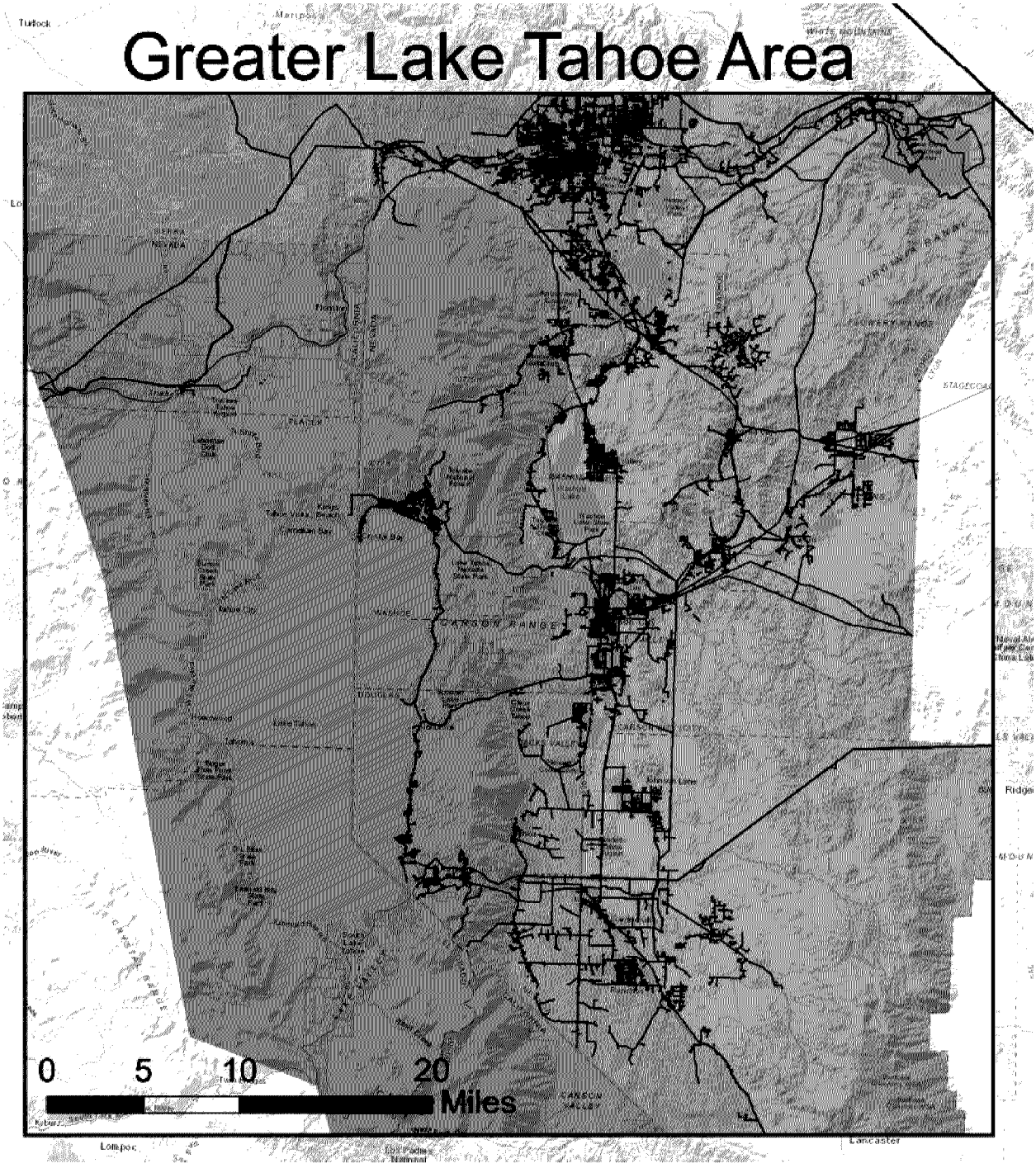


Figure A15. Winter Event Risk in Southern NV

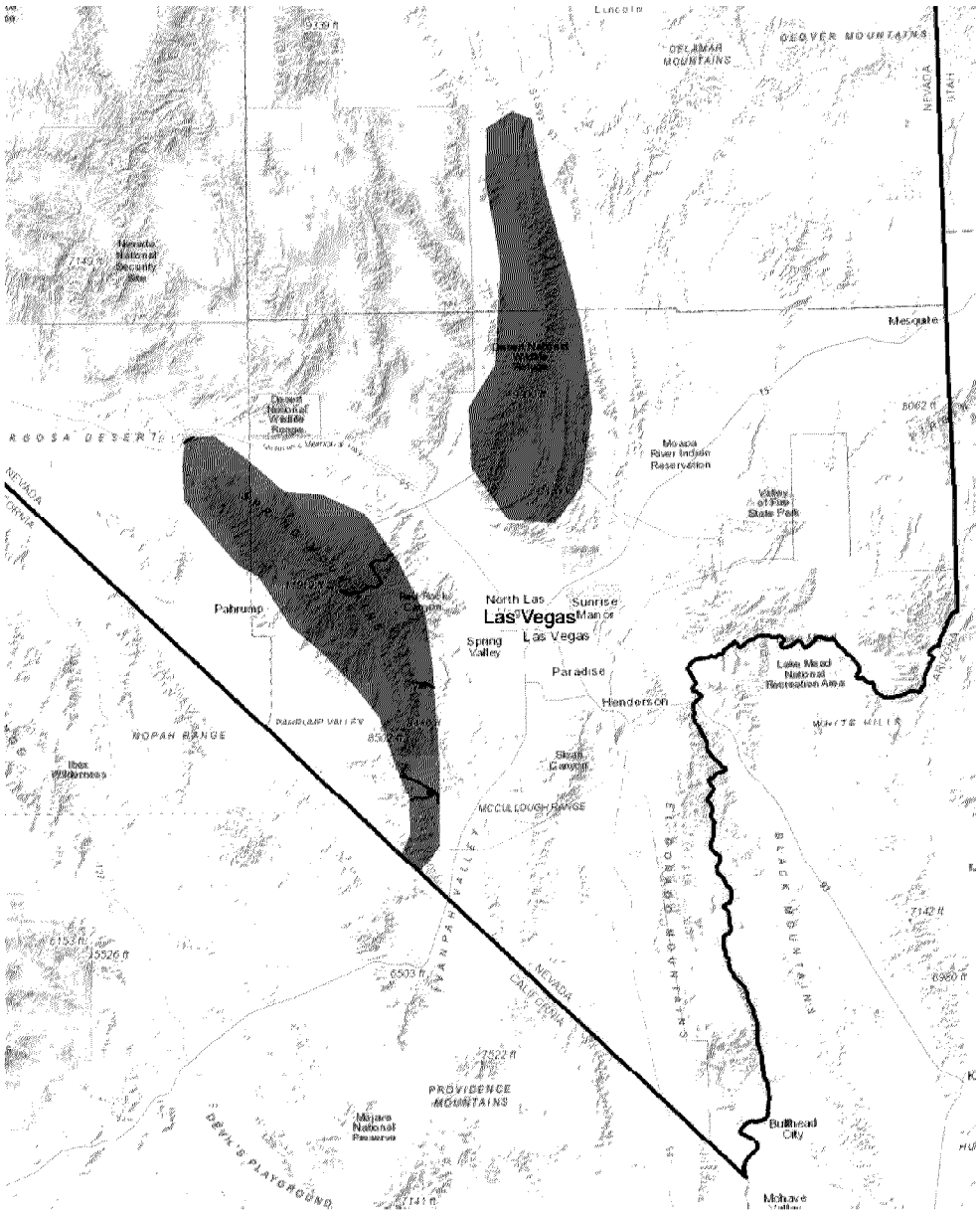
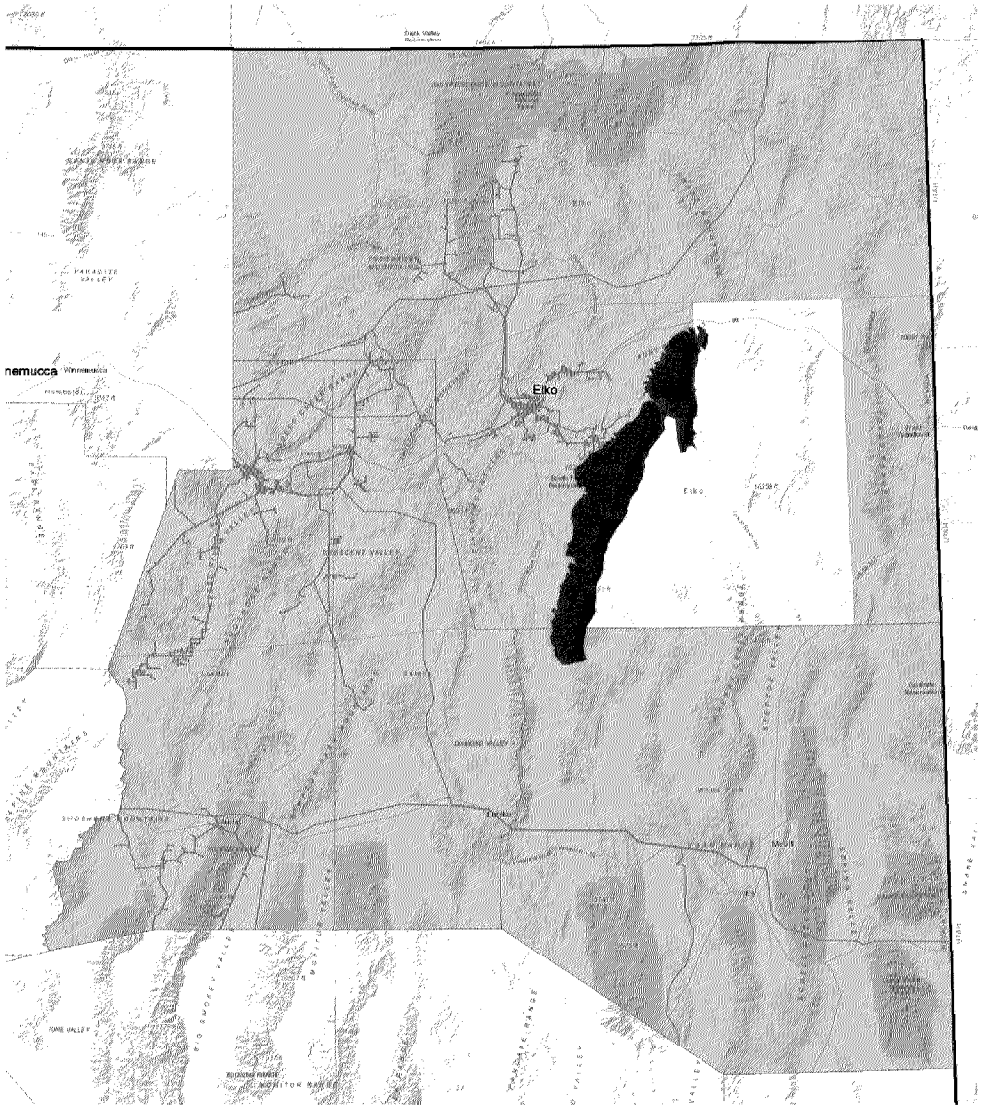


Figure A16. Winter Event Risk in Eastern Nevada



A.4 THUNDERSTORMS AND MICROBURSTS

Thunderstorm and microburst risk maps appear in this Section.

Figure A17. Thunderstorm Wind Risks Legend

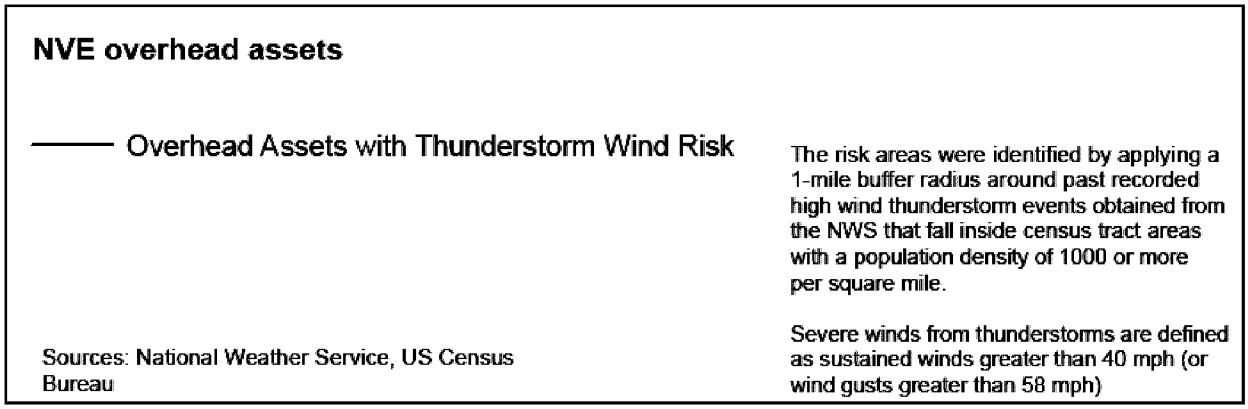


Figure A18. Thunderstorm Wind Risk

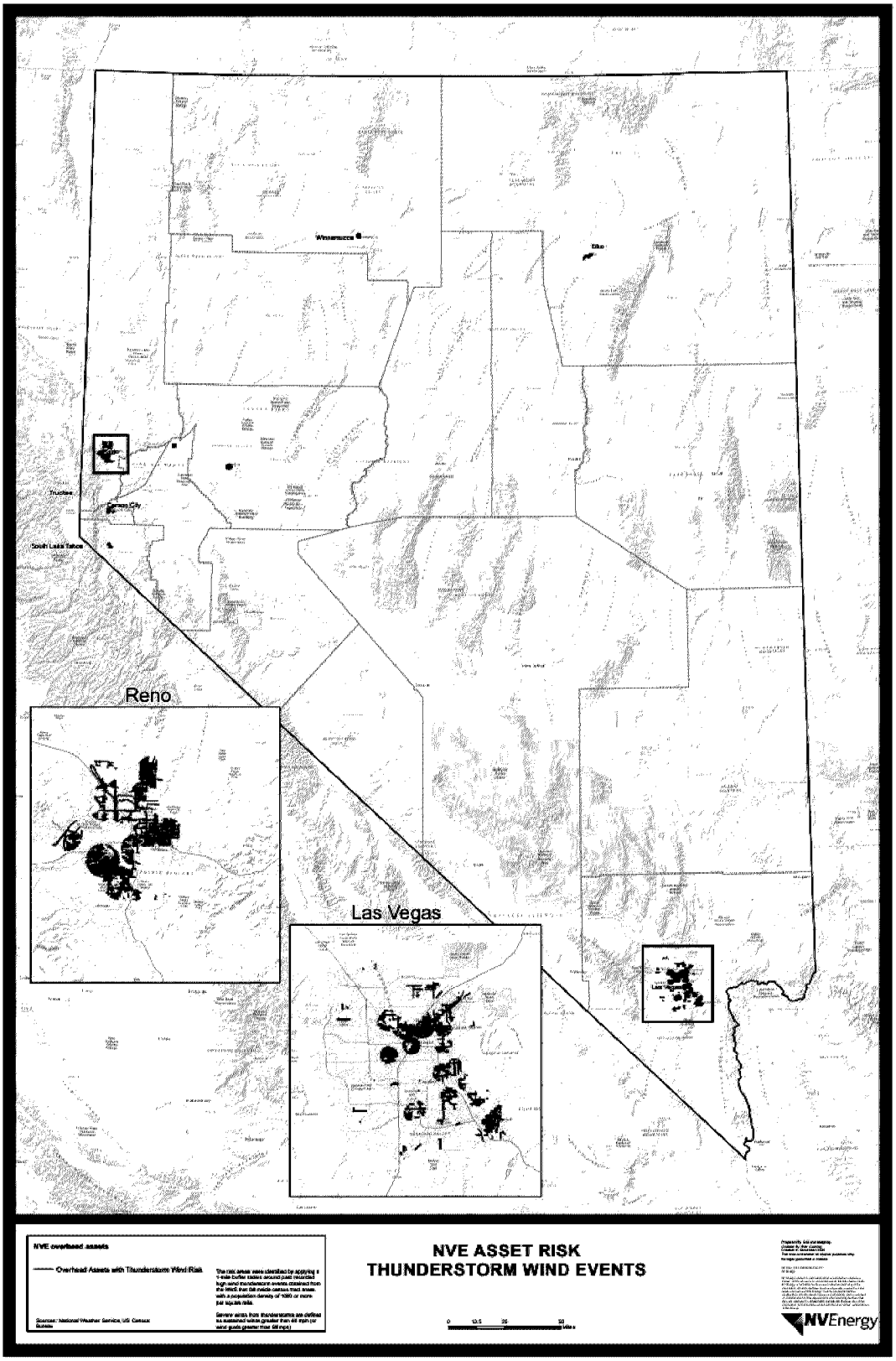


Figure A19. Thunderstorm Wind Risk Surrounding Reno

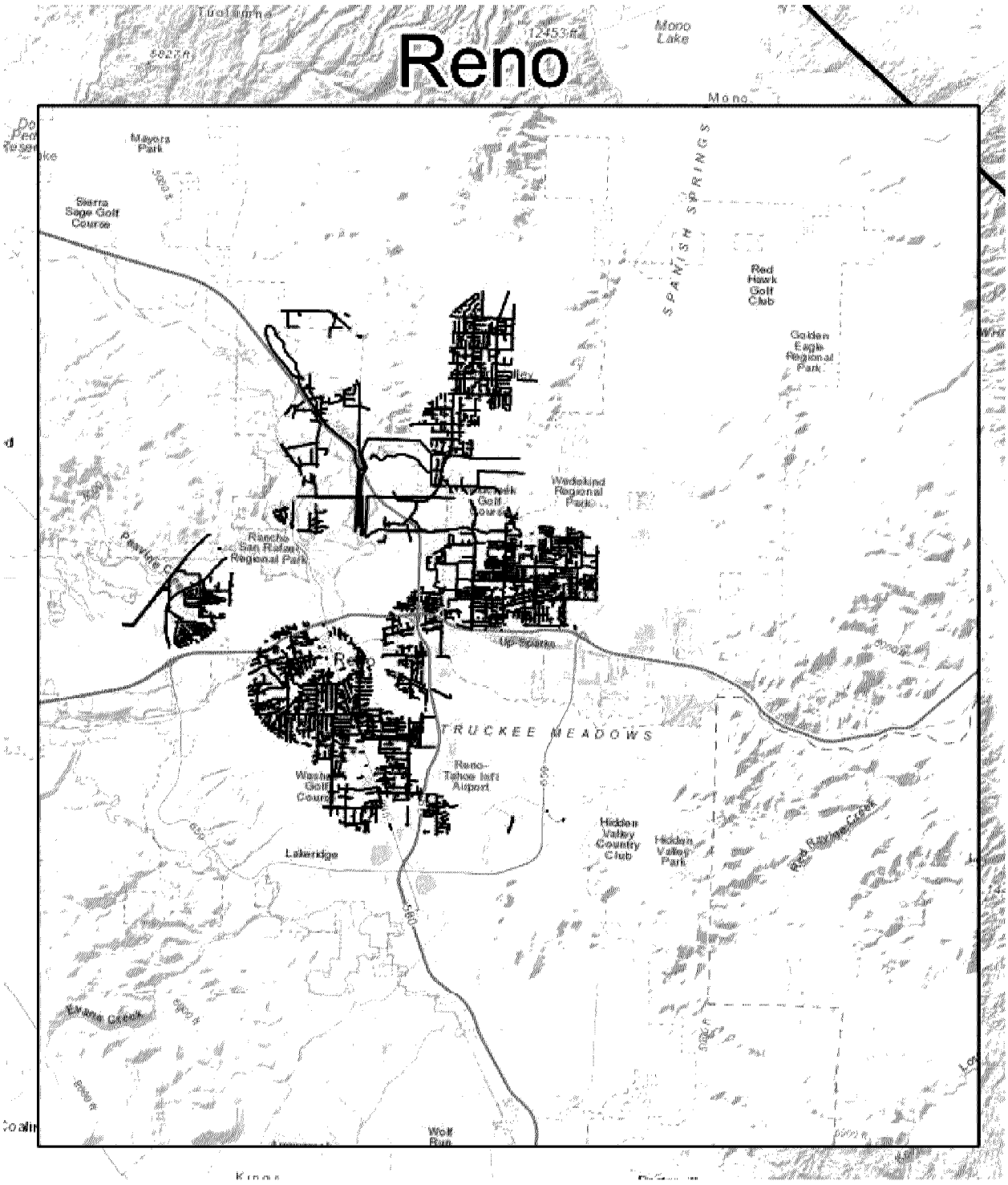
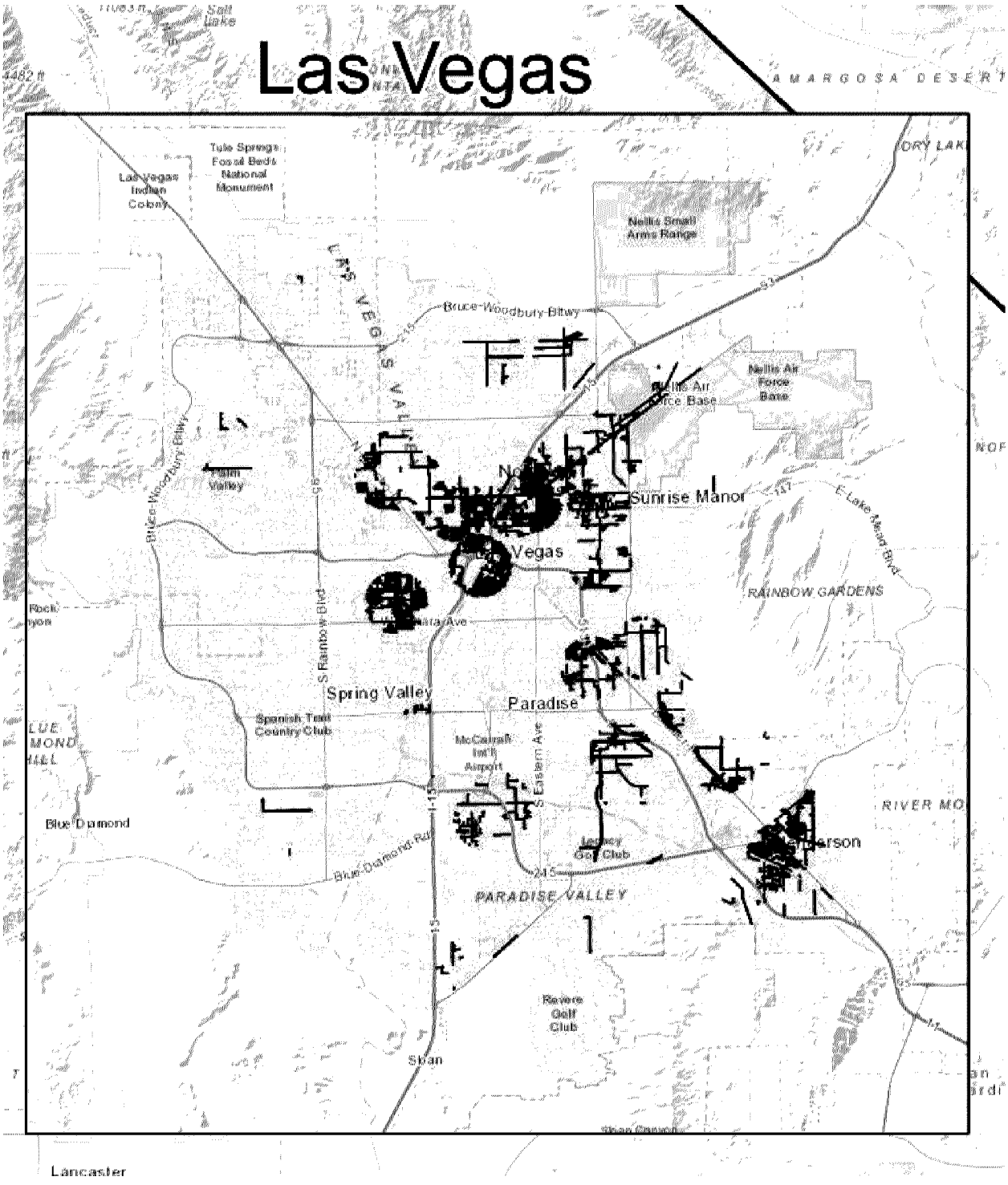


Figure A20. Thunderstorm Wind Risk Surrounding Las Vegas



A.5 MONSOONS AND FLOODING

Monsoon and flooding risk maps appear in this Section.

Figure A21. Monsoon and Flood Risk Legend

NVE Assets Within 100 Year Flood Zone

NVE Assests Within a Past Occuring Flash Flood/Heavy Rain Event

NVE Substation

Dam Location

Source: FEMA & NOAA

Figure A22. Flooding and Monsoon Risk Surrounding the Lake Tahoe Basin

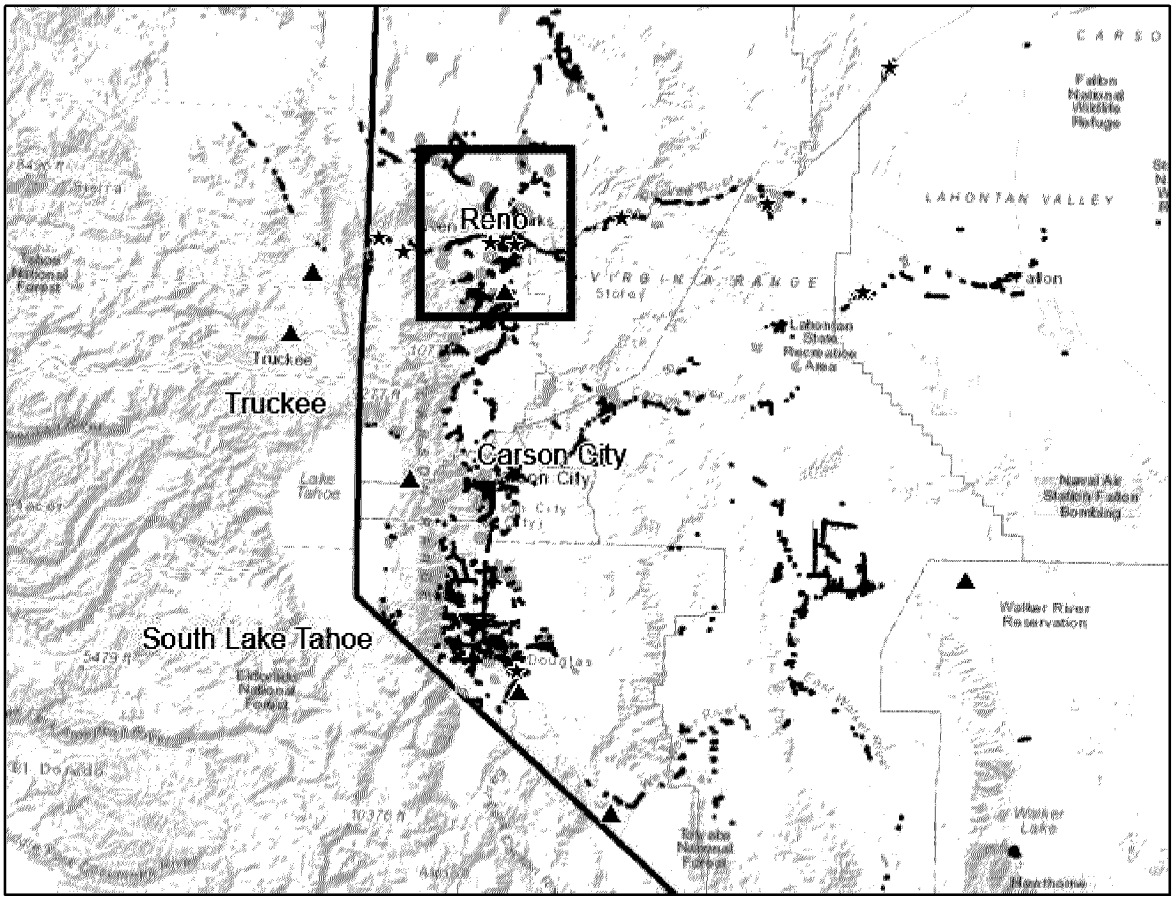


Figure A23. Flooding and Monsoon Risk in the Northeast

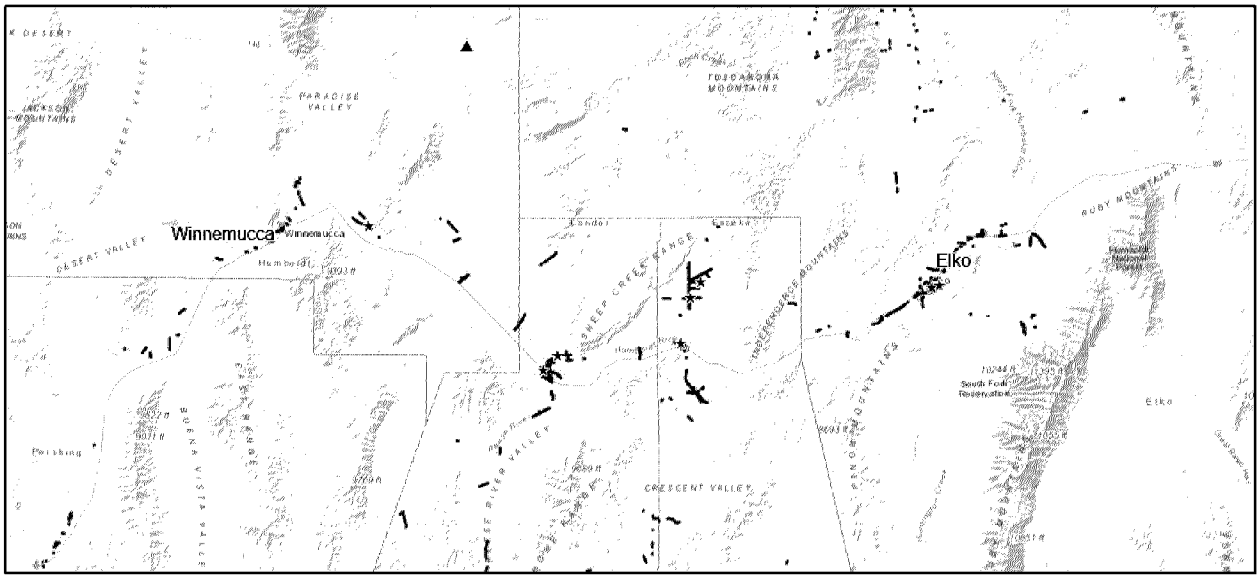
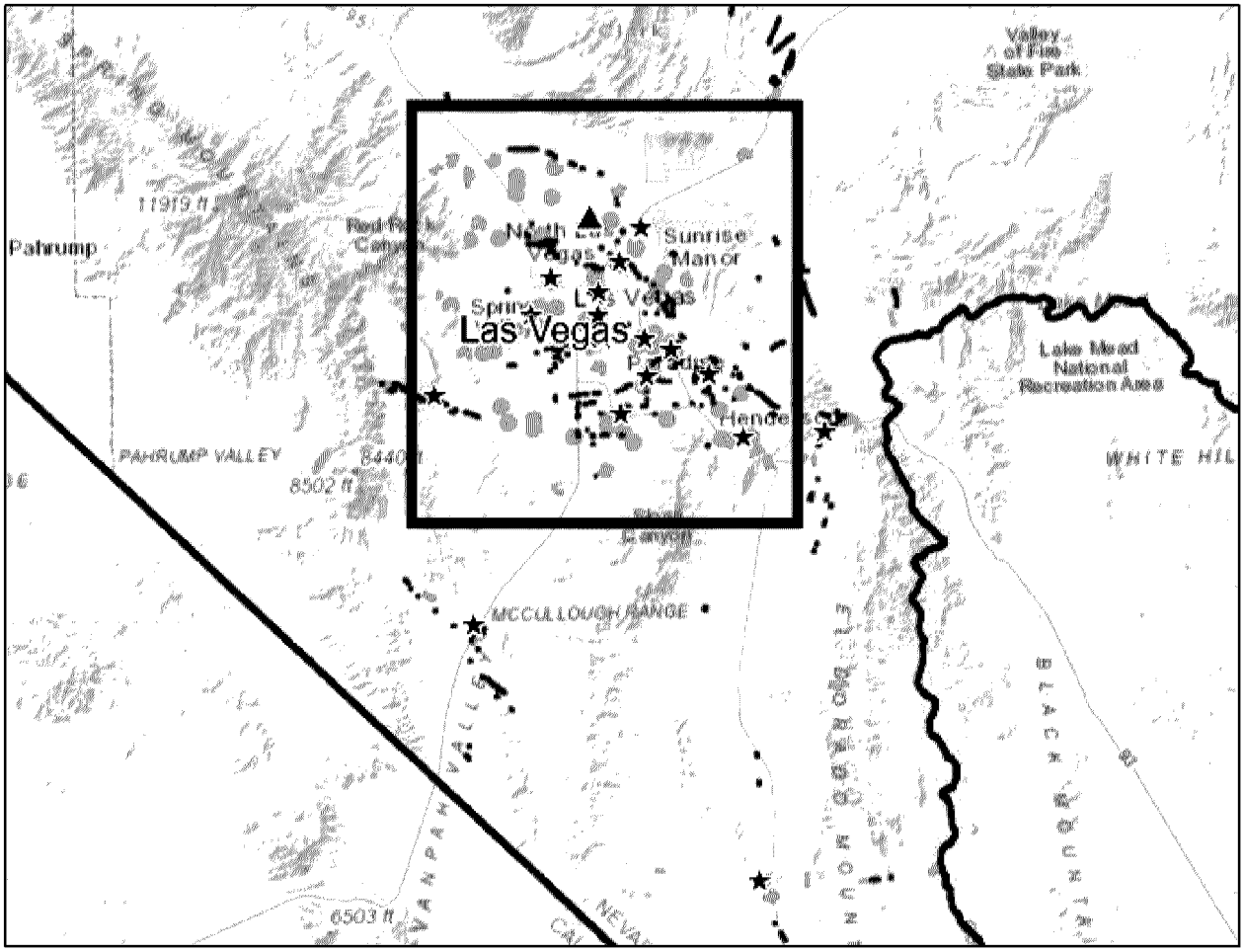


Figure A24. Flooding and Monsoon Risk in the South



A.6 HEAT WAVES AND DROUGHT

Drought risk maps and trends appear in this Section.

Figure A25. Drought Risk Across the U.S.

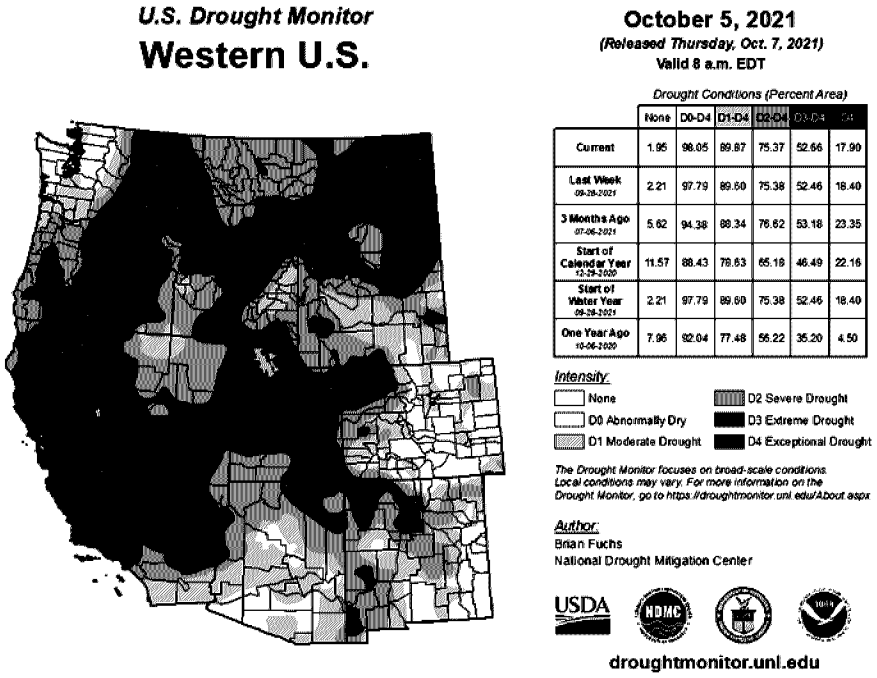
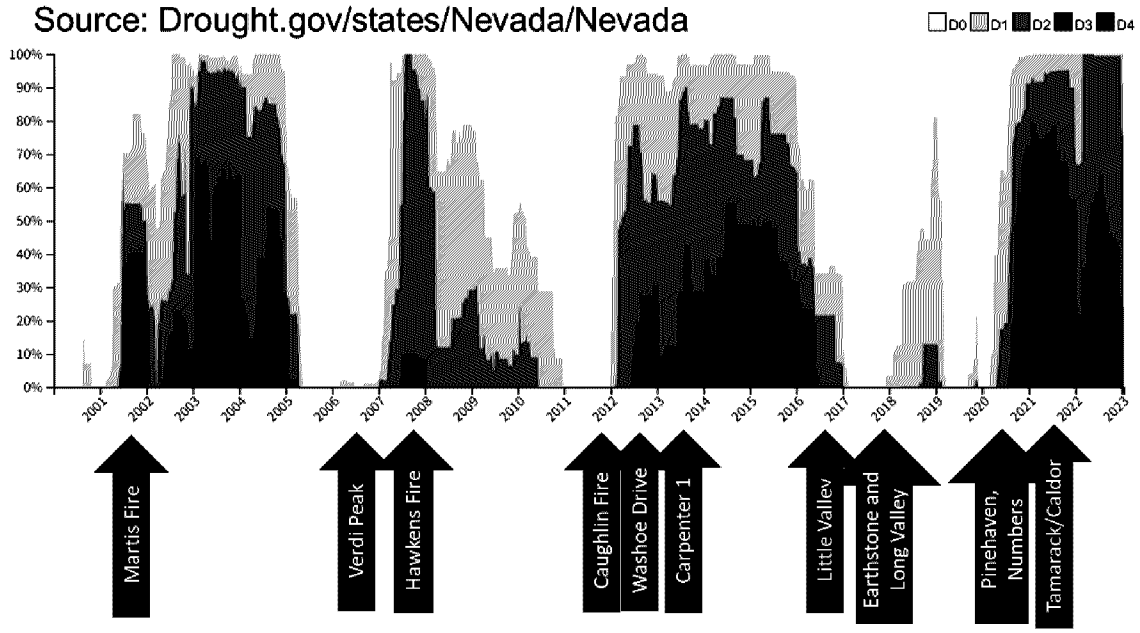


Figure A26. Drought Trends Chronology



A.7 EARTHQUAKES

Earthquake risk maps appear in this Section.

Figure A27. Earthquake Risk Legend

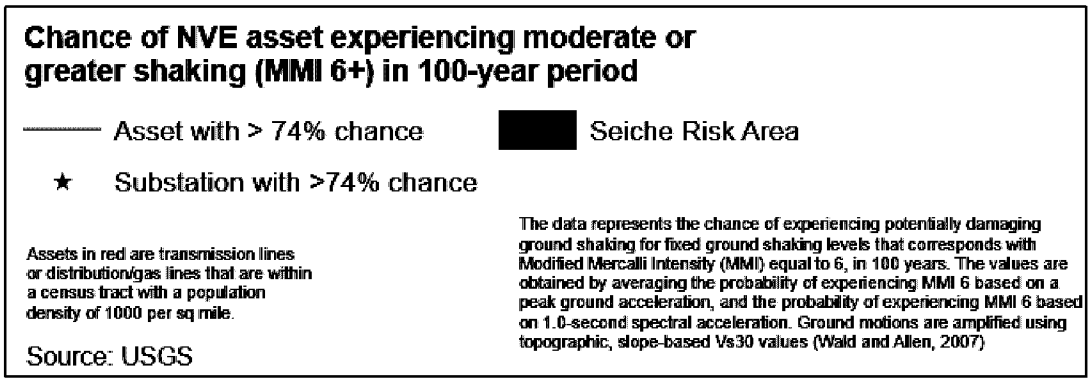


Figure A28. Earthquake Risk Surrounding the Tahoe Basin

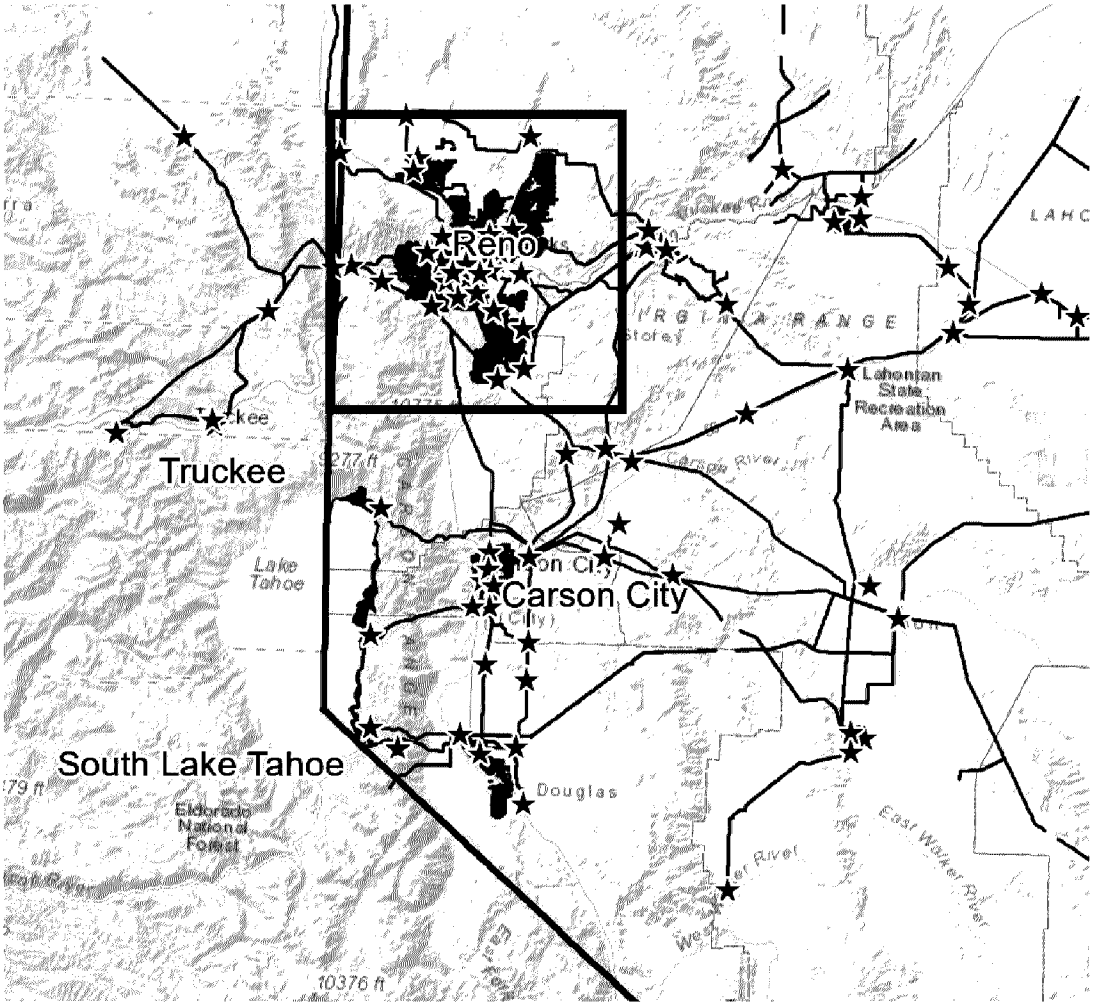


Figure A29. Earthquake Causing Slight (or Greater) Damage in Next 100 Years Risk

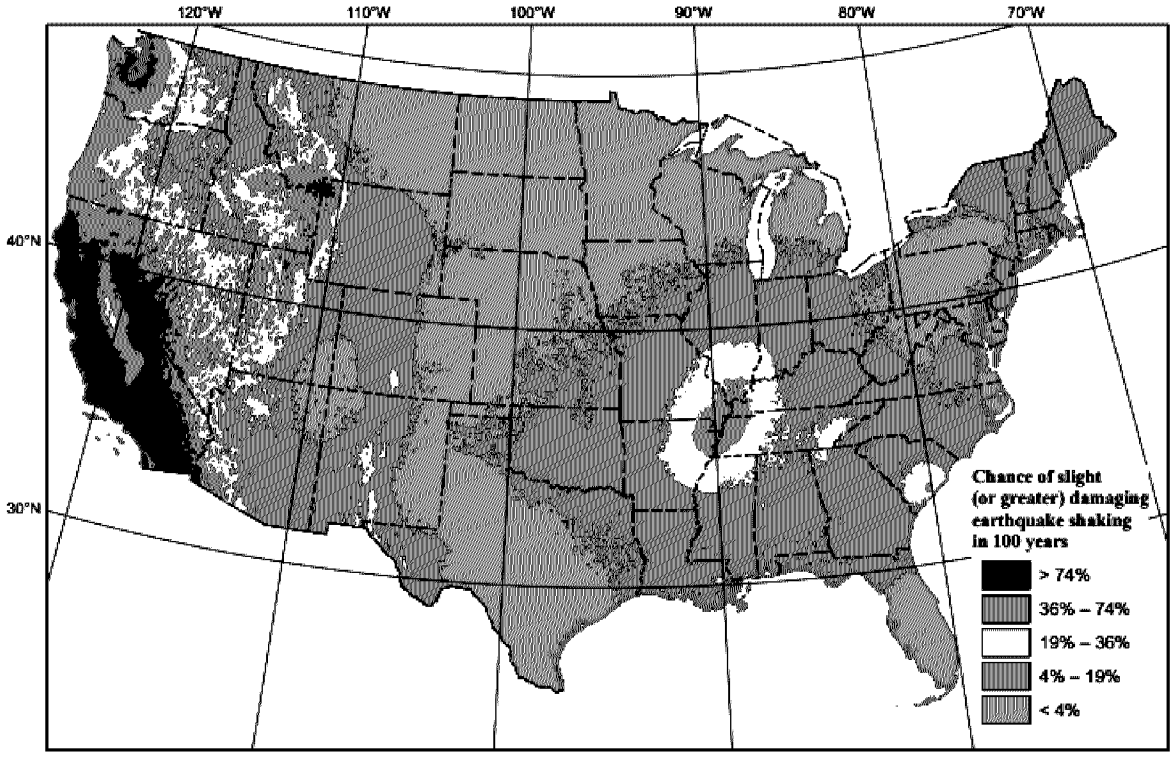


Figure 1. Map showing the chance of minor damaging earthquake shaking in 100 years from the 2018 NSHM. The shaking is equivalent to Modified Mercalli Intensity VI and is based on the average 1-second horizontal spectral response acceleration and peak ground acceleration. Ground-motions are amplified using topographic-based V_{S30} values (Wald and Allen, 2007).

A.8 LANDSLIDES/AVALANCHES

Landslide and avalanche risk maps appear in this Section.

Figure A30. Landslide and Avalanche Risk Legend

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Figure A31. Landslide and Avalanche Risk in the Northeast

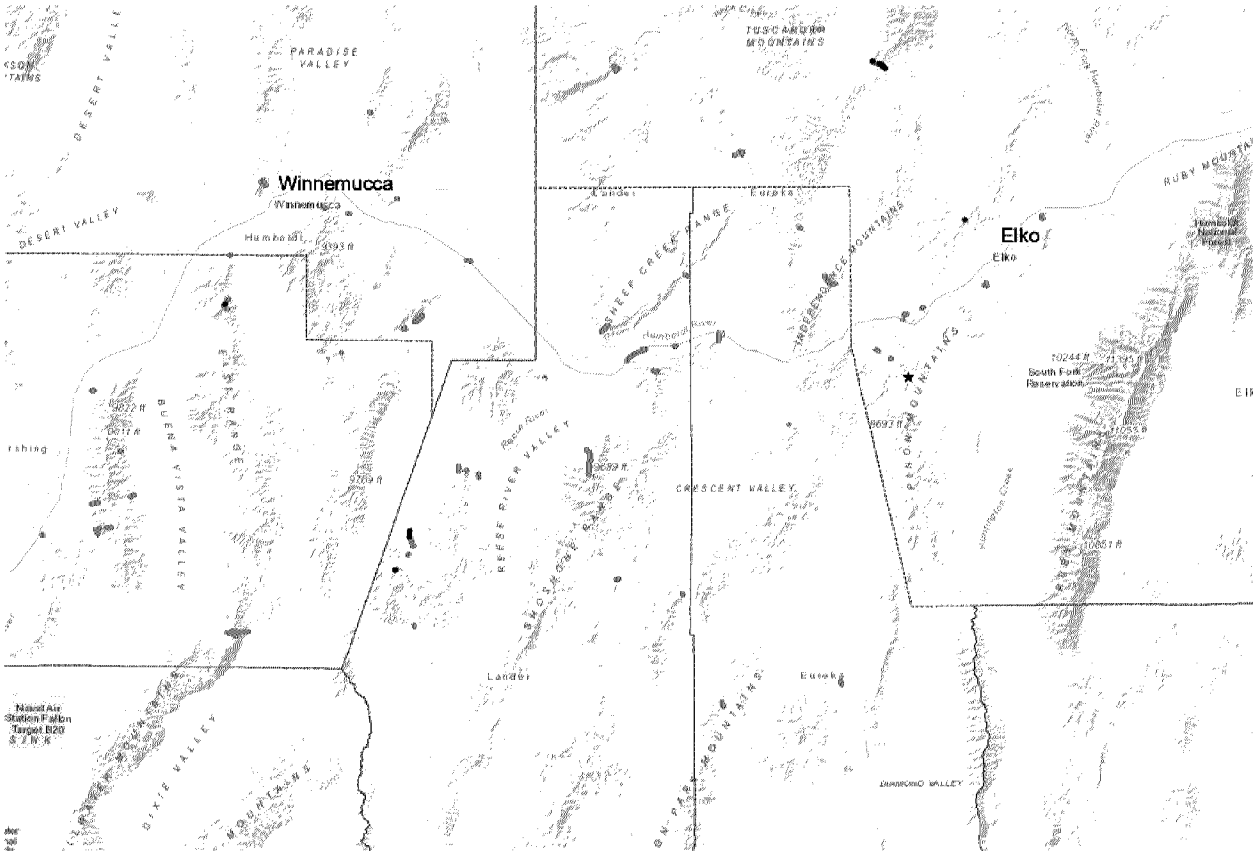

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Figure A32. Landslide and Avalanche Risk in the Reno / Carson City Area

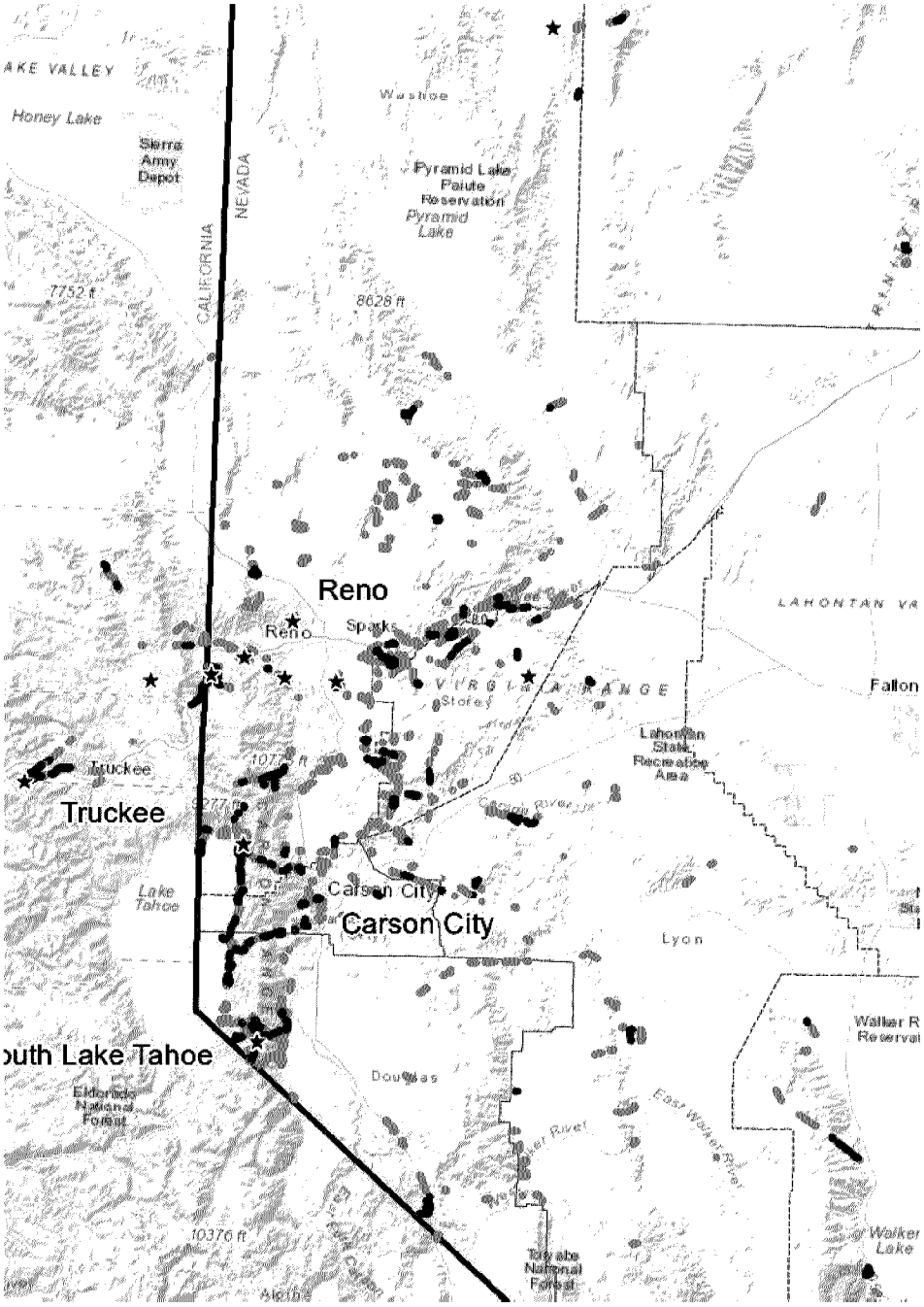
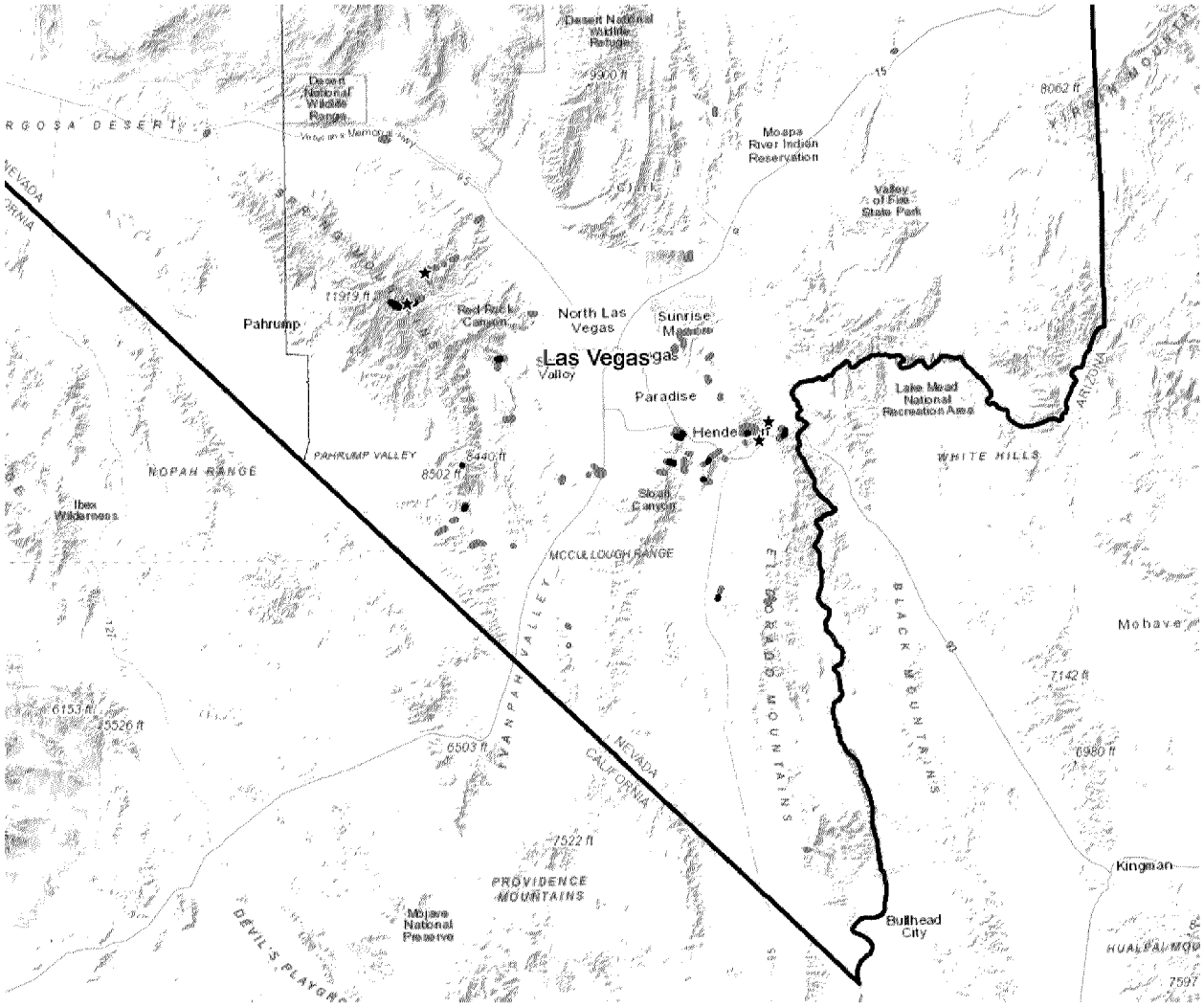


Figure A33. Landslide and Avalanche Risk in the South



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APPENDIX B. UPDATED WILDFIRE RISK ASSESSMENT

This Section includes reports developed by REAX Engineering for the following risk assessments:

- REAX Assessment for Proposed Tier 3 Virginia City Highlands
- REAX Assessment for Proposed Tier 1 Wildland Urban Interface

B.1 REAX ASSESSMENT FOR PROPOSED TIER 3 ZONE: VIRGINIA CITY ("VC") HIGHLANDS

REAX ENGINEERING

1921 University Ave. ▪ Berkeley, CA 94704 ▪ Phone 510-387-2155

Chris Lautenberger
lautenberger@reaxengineering.com

15 February 2023

Mark Regan
Fire Mitigation Specialist
NV Energy

Subject: Proposed Tier 3 Zone: Virginia City Highlands

Dear Mr. Regan,

This document analyzes fire risk considerations in NV Energy's Virginia City Highlands (hereafter, VC Highlands) fire risk zone / Proactive De-energization Zone (PDZ). Although this zone is currently classified as Tier 2, this area is more appropriately classified as Tier 3 / extreme fire risk as described herein.

VC Highlands Overview

The VC Highlands PDZ is shown in Figure 1. This rural community consists of one-acre lots clustered in the interior of the subdivision, with ten-acre parcels centered around the one-acre core and forty-acre parcels in the outermost extents of the subdivision. The wildland-urban interface condition around VC Highlands is classified as intermix, meaning homes are scattered among wildland vegetation with no clear demarcation between structures and vegetation. The area is hilly with steep slopes, ranging between approximately 5,800 feet to almost 7,000 feet.

A 2002 report[1] rated VC Highlands' fire risk as Extreme Hazard. This rating was primarily due to the combination of steep slopes; dense, flammable vegetation; very little defensible space; and narrow roads with limited access (Figure 2a and 2b). These factors alone present significant concern with regard to wildfire. The same report also noted that all utility infrastructure in the region was above ground. The concerns raised in 2002 remain in 2023.

[1] https://www.rci-nv.com/reports/storey/section09.html

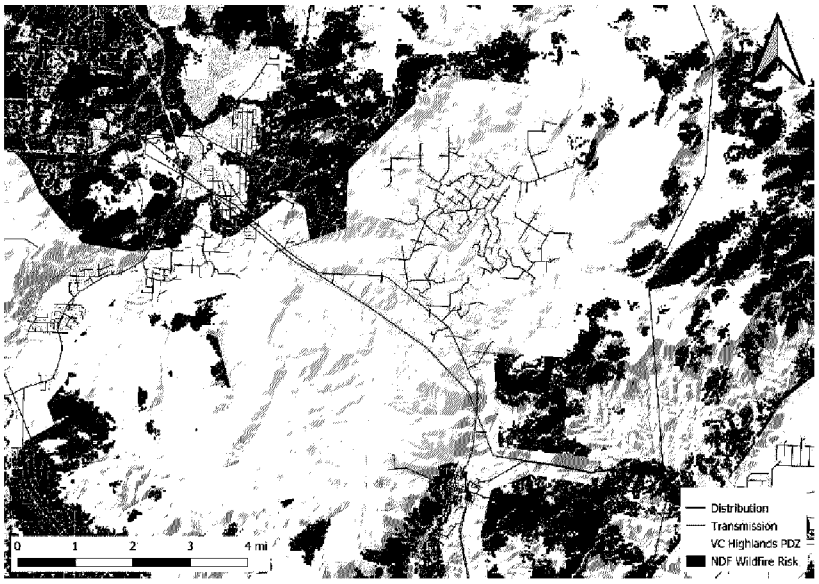

Figure B1. Current VC Highlands Tier 2 PDZ

2

(a)

(b)

Figure B2. Example of Existing Conditions in VC Highlands

Fire History

To understand how fire has historically impacted the VC Highlands area, fire history records were analyzed. Such analysis of past fire history provides context for historical fire sizes, locations, causes, and frequency at which fires occur. Historic fire perimeters are available from the Wildland Fire Decision Support System[2] (WFDSS) and ~40 years of fire history were analyzed; average fire return interval in pinyon juniper woodlands has historically been approximately 30 years[3]. Figure 3 shows fire perimeters from fires in the vicinity of VC Highlands. Although fires have occurred in the area, there have been no significant fires within VC Highlands for several decades, indicating that untreated vegetation has reached its climax condition.

The 1875 Virginia City Fire provides anecdotal insight into the impact severe weather could have upon a fire. In 1875 a fire ignited by an overturned lamp in Virginia City grew under Washoe Zephyr winds to an inferno that destroyed 2,000 structures in approximately nine hours[4]. Similar environmental conditions exist in and around VC Highlands as vegetation cures over the dry summer months until season ending precipitation occurs later in the year.

[2] https://wfdss.usgs.gov/wfdss/wfdss_data_downloads.shtml
[3] https://www.fs.usda.gov/database/feis/fire_regimes/CA_pinyon_juniper/all.html
[4] https://www.intermountainhistories.org/items/show/246

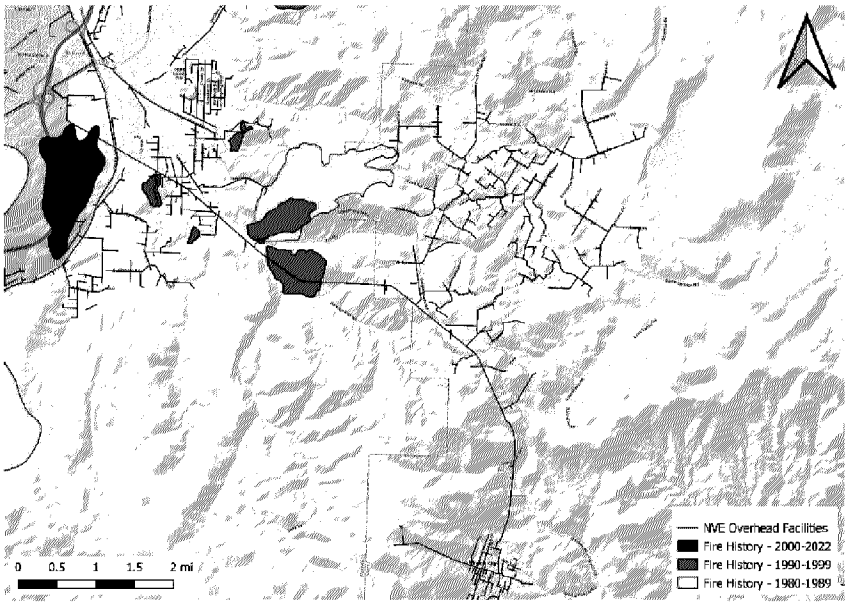

Figure B3. VC Highlands Fire History Since 1820 [2].

Structure Density and Wildland Urban Interface / Intermix Designation

According to SILVIS labs Wildland-Urban Interface dataset[5], VC Highlands is classified as low- and medium-density intermix. Figure 4 shows these WUI designations within VC Highlands along with building footprints from the Microsoft building footprint dataset[6]. The sparse, interspersed nature of structures within the wildland fuels can be clearly seen. Structure losses are more likely in low-density housing than in high-density housing[7].

[5] http://silvis.forest.wisc.edu/data/wui-change-2020/

[6] https://github.com/microsoft/USBuildingFootprints

[7] Syphard, A.D., Rustigian-Romsos, H., Mann, M., Conlisk, E., Moritz, M.A., Ackerly, D., "The relative influence of climate and housing development on current and projected future fire patterns and structure loss across three California landscapes," Global Environmental Change, **56** pg. 41-55 (2019).

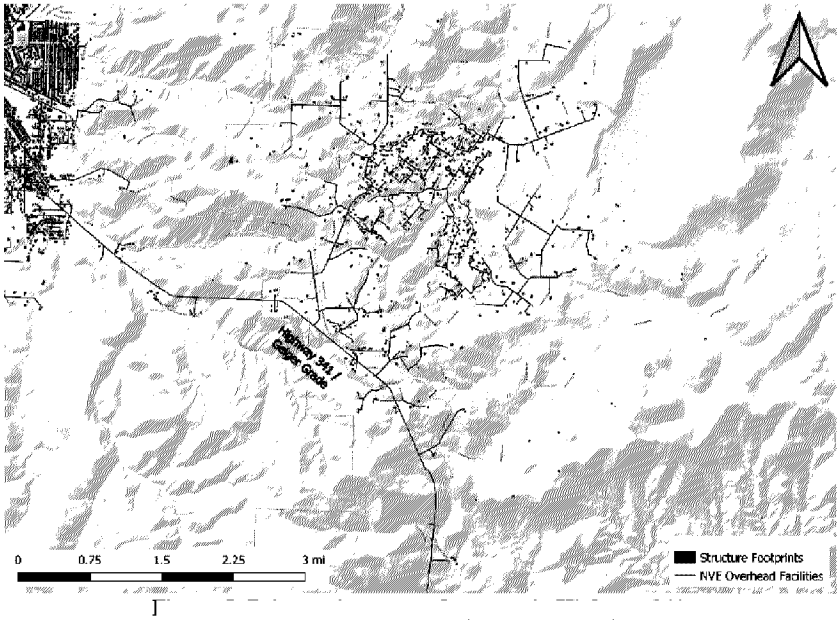

Figure B4. Primary Ingress and Egress via Highway 341.

Fuels

The 2002 report mentioned previously[8] characterized VC Highlands fuel hazards as moderate to extreme:

> The fuel hazard in the Virginia Highlands interface area ranges from moderate to extreme. Fuels consist of sagebrush with inclusions of bitterbrush, rabbitbrush, desert peach, pinyon pine, and juniper trees. The terrain is steep. At the time of the evaluation, the vast majority of the homes did not have landscaping that would meet the minimum requirement for defensible space to protect the home from damage or loss during a wildfire; however, activities focused on clearing defensible space have been initiated.

The current conditions in VC Highlands, shown previously in Figure 1, corroborate the 2002 assessment.

NV Energy's fuel moisture sampling conducted in VC Highlands in 2022 illustrates that fuels reach critical levels rapidly in the hot, dry climate (Figure 6). Live woody fuel moisture values dropped below 100% toward the end of August, and 1000-hour fuels dropped below 10% fuel moisture content as early as June.

[8] https://www.rci-nv.com/reports/storey/section09.html

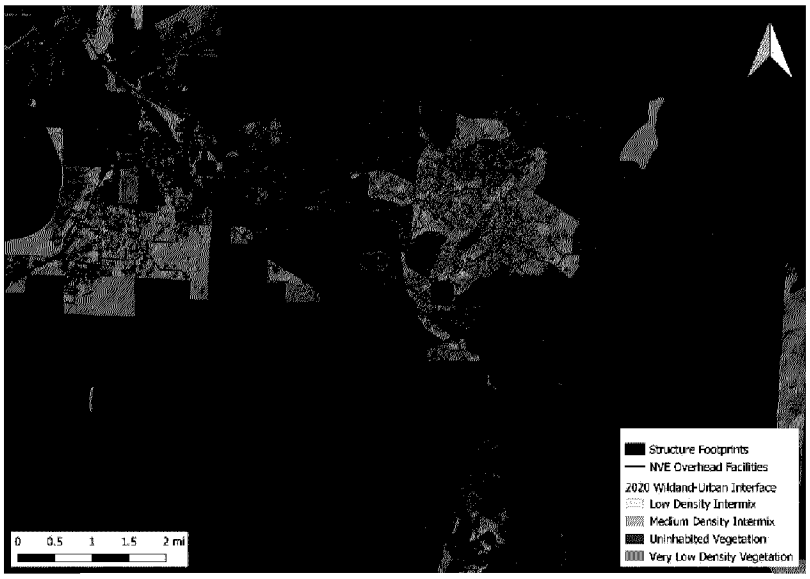

Figure B5. Wildland-Urban Interface Classifications – VC Highlands.

Ingress and Egress

The primary means of egress from VC Highlands is via Highway 341/Geiger Grade Road (Figure 5). Having only one means of egress by which an entire population is expected to evacuate is a signature element of wildland interface/intermix developments. In the event that Highway 341 were to become compromised as a viable means of egress, perhaps due to fire, the residents of VC Highlands may have to shelter in place. Secondary means of egress are narrow, winding, single-lane unpaved roads, the nature of which would pose a hazard in the event of an evacuation.

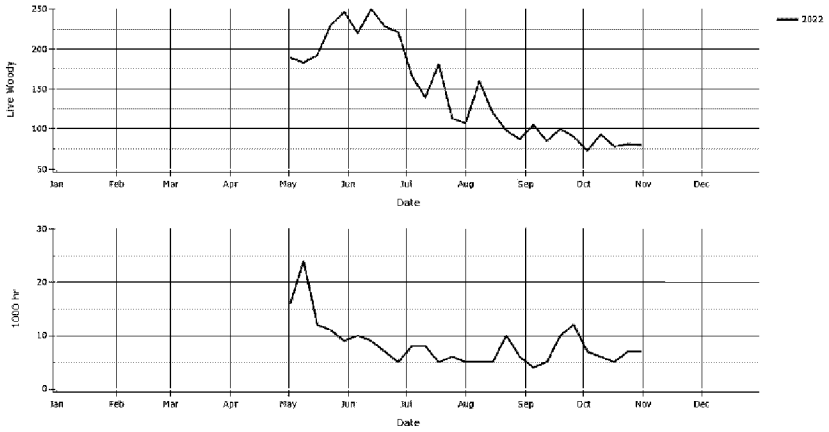

Figure B6. NV Energy's 2022 Fuel Moisture Sampling at VC Highlands. [i]

Fire Weather

Strong winds out of the southwest, which are typically associated with Zephyr winds or frontal passages, are the primary fire weather concern for VC Highlands. The wind rose shown in Figure 7 illustrates the relative frequency of wind speeds and directions at NV Energy's weather station "NV004 – Virginia City" which was installed in 2020. Winds between South and West occur 42.1% of the time, with West-Southwesterly winds occurring 13.1% of the time.

A frequency analysis of wind gust speeds at the same weather station was also conducted. The results are shown in Table 1. The frequency analysis shows that winds of approximately 40 mph could reasonably be expected four times a year at VC Highlands.

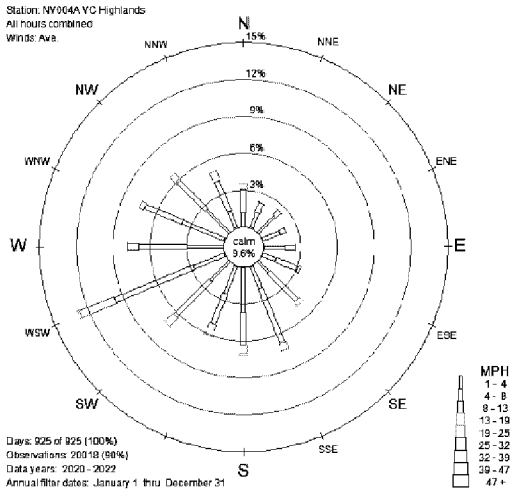

Figure B7. Sustained Wind Speeds at NV004 – VC Highlands

Table B1. Wind Gust Return Interval at NV004 – Virginia City

Years	Gust Speed
0.25	39.6
0.5	44.6
1	47.6

Winter storms in January 2023 downed several trees in the VC Highlands area. Winds strong enough to down trees can also interfere with utility operations. Snow and ice on the overhead lines can severely damage infrastructure, possibly to the extent of causing an ignition. While the amount of snow on the ground in January 2023 made an ignition unlikely, the possibility exists for future wind events.

Fire Behavior

Fire behavior modeling was conducted using Flammap[9] to estimate certain fire behavior characteristics such as rate of spread and spotting distance. Fuels from LANDFIRE[10] 2022 capable were used. Using the wind rose shown in Figure 7, winds of 12 mph from the west-southwest were used. Under these conditions flame lengths in the VC Highlands PDZ ranged from 4-8 feet, with rates of spread ranging from 22 to 44 ft/min. A maximum spotting distance of 0.3 miles was estimated with passive crowning of timber stands.

Summary and Conclusions

The conditions that exist within the VC Highlands PDZ present a serious risk to the community in the event of a wildfire. Fuels are predominantly pinyon juniper and other brushy woodland type fuels. Defensible space is lacking around some structures. Most of VC Highlands has not burned in decades, indicating fuels are at climax conditions. Fire behavior as modelled under winds possible during a frontal passage indicates rapid rates of spread with passive flame lengths that would present suppression and control challenges. These factors all contribute towards the proposal that the VC Highlands PDZ be elevated from Tier 2 to Tier 3.

Sincerely,

Chris Lautenberger

Christopher W. Lautenberger, PhD, PE

[9] https://www.firelab.org/project/flammap
[10] https://landfire.gov/viewer/

B.2 REAX ASSESSMENT FOR PROPOSED NV ENERGY PROPOSED TIER 1 FIRE RISK ZONE

REAX ENGINEERING

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Chris Lautenberger
lautenberger@reaxengineering.com

15 February 2023

Mark Regan
Fire Mitigation Specialist
NV Energy

Subject: NV Energy Proposed Tier 1 Fire Risk Zone

Dear Mr. Regan,

NV Energy is proposing to designate a new fire risk tier to capture areas having heightened fire risk, called Tier 1. The primary motivations for this change are to:

1. Better align NV Energy's fire risk zones with the existing fire risk map[1] in use by the Nevada Division of Forestry (NDF) at the state level for promulgating regulations around new building construction, and
2. Capture areas with heightened fire risk associated with potential impacts to assets at risk beyond structures, including grazing, ranching, habitat, drinking water, and timber.

As part of this effort, NV Energy is analyzing NDF's fire risk map which forms the basis for the new Tier 1 designation, and this document presents some of these findings.

Tier 1 Zones

Maps designating the proposed Tier 1 zone (as well as the existing Tier 1E, Tier 2, and Tier 3 zones) are presented in Appendix A. These maps are organized as follows:

- Figure B8: Statewide
- Figure B9: Las Vegas
- Figure B10: Reno
- Figure B11: Winnemucca
- Figure B12: Elko

Fire history

[1] https://nevadaresourcesandwildfireinfo.com/Map/Public/

Past fire occurrence provides an indication of where fires are likely to occur in the future. For that reason, two sources of fire history data are analyzed here:

1. USFS Fire Occurrence Database[2]. This includes 28 years (1992-2020) of fire ignition records as reported by local, state, and federal agencies.
2. Pyrecast fire polygons[3]. This encompasses 20 years of fire perimeter records.

Figure 1 maps historical fire ignition locations relative to NV Energy's risk tiers and Figure 2 shows historical fire perimeters relative to these tiers. The number of ignitions (over 28 years) is summarized by tier in Table 1, along with the approximate number of structures within a 120 m buffer surrounding each tier[4].

Table 1. Summary of Fire History and Structure Counts Within 120m Buffer Surrounding NV Energy's Current and Proposed Fire Risk Tiers

Tier	Ignitions	Structures
1	9,928	160,877
1E	966	26,097
2	774	19,785
3	508	7,168

[2] https://www.fs.usda.gov/rds/archive/catalog/RDS-2013-0009.6
[3] https://pyrecast.org
[4] https://github.com/microsoft/USBuildingFootprints

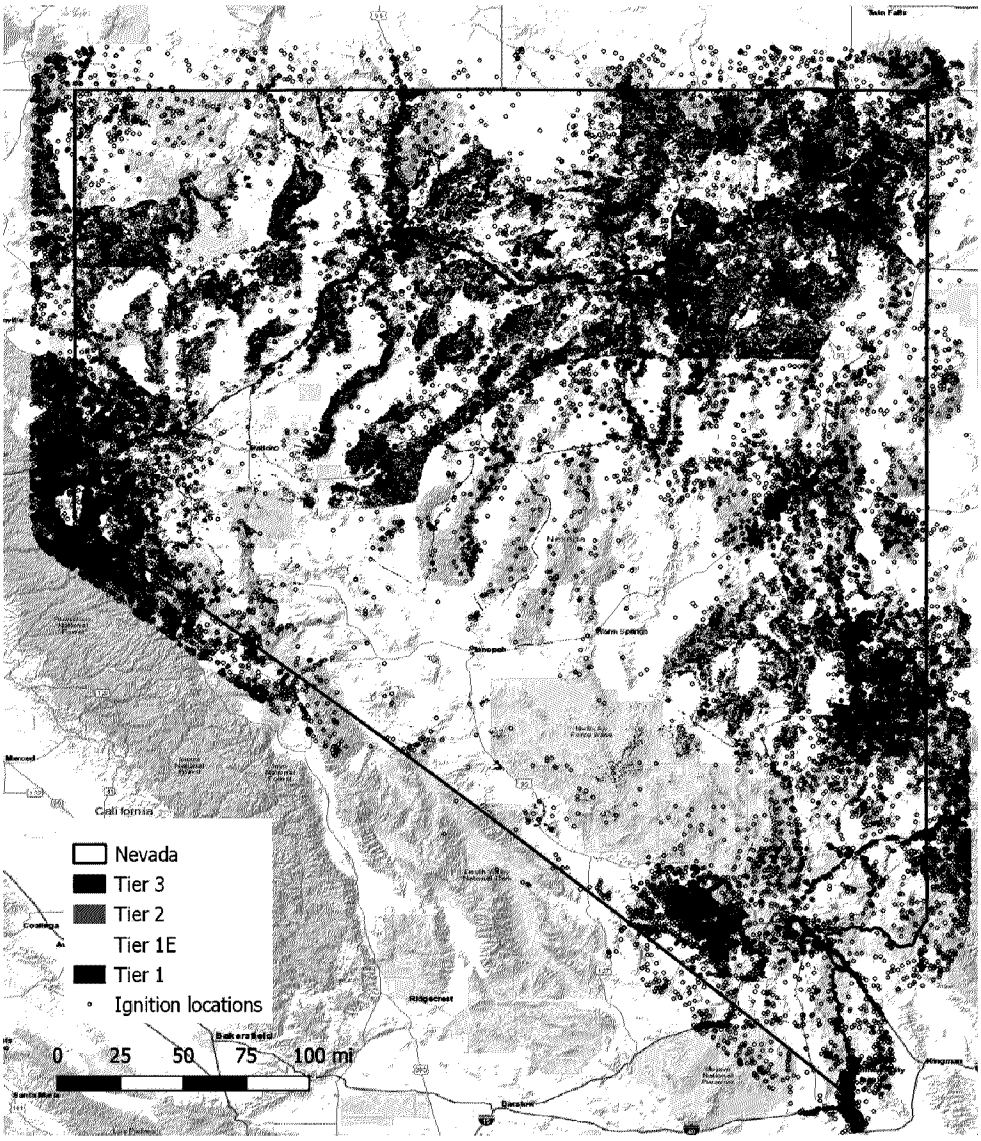


Figure B8. Historical Fire Ignition Locations Relative to NV Energy's Current and Proposed Fire Risk

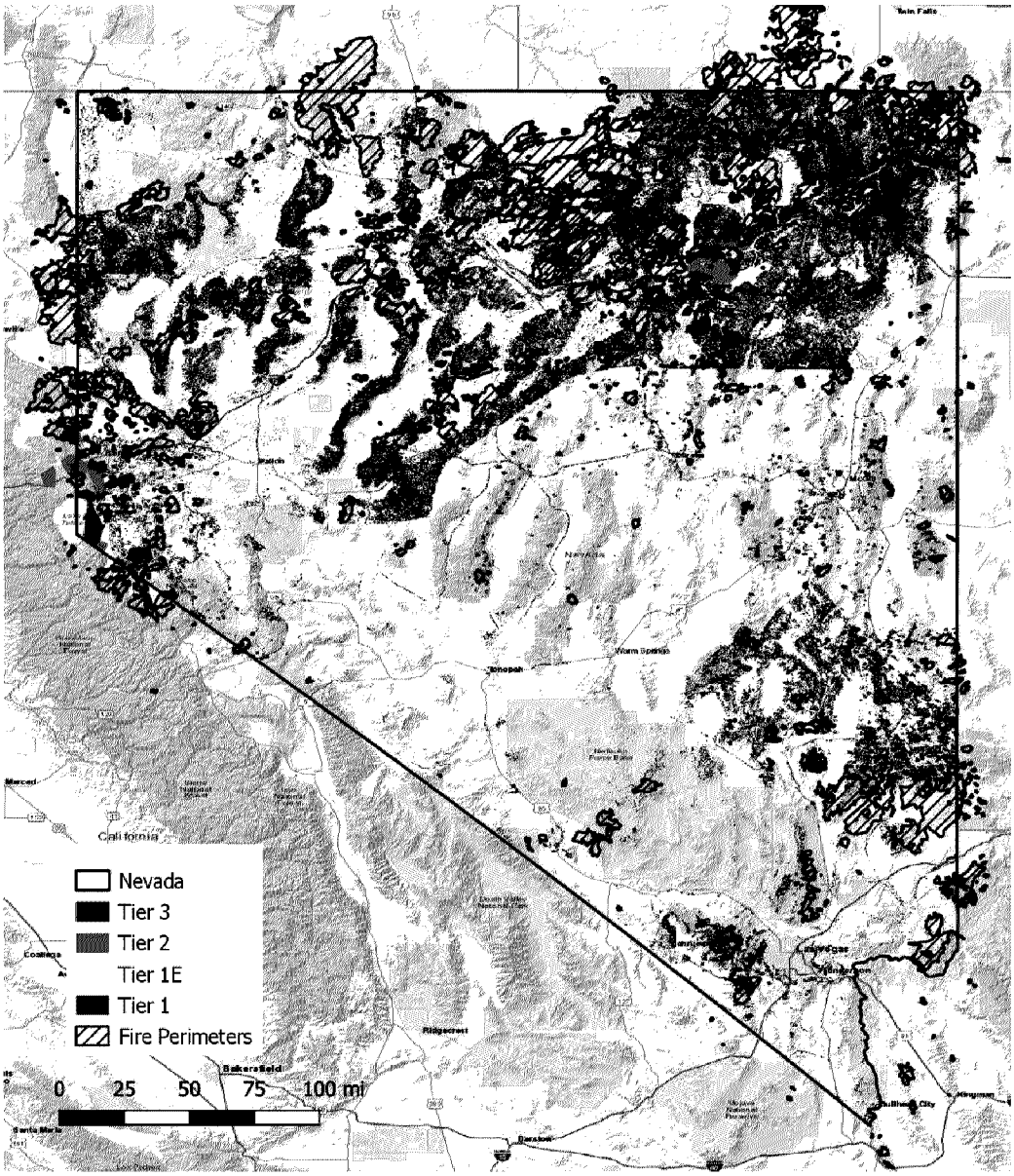


Figure B9. Historical Fire Perimeters Relative to NV Energy's Current and Proposed Fire Risk Tiers

Grazing

BLM Nevada grazing allotment polygons[5] relative to NV Energy's tiers are shown in Figure 3.

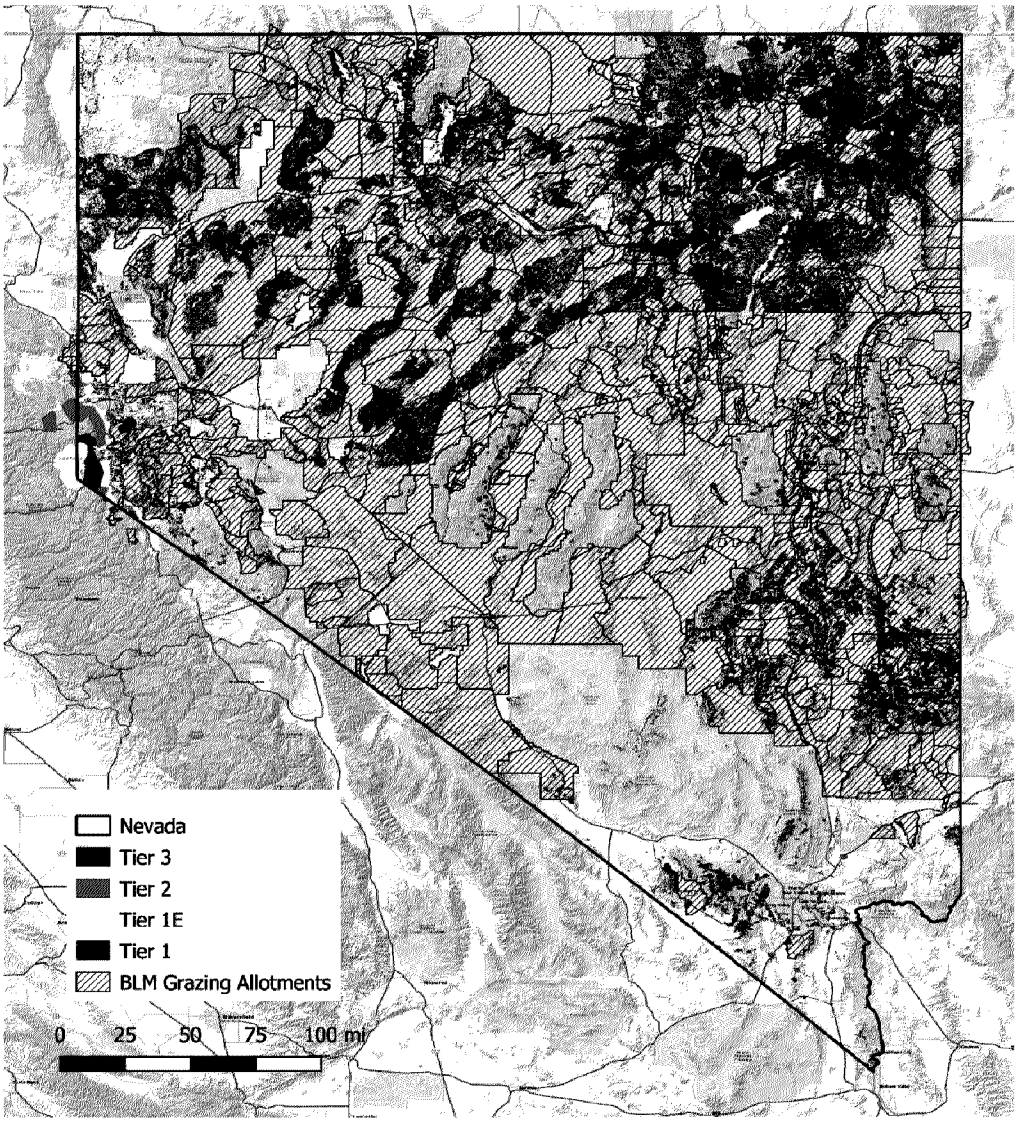


Figure B10. BLM Grazing Allotment Polygons Relative to NV Energy's Current and Proposed Fire Risk Tiers

[5] https://data.doi.gov/dataset/blm-nv-grazing-allotment-polygons

Sage grouse habitat

Sage grouse habitat[6] relative to NV Energy's tiers is shown in Figure 4.

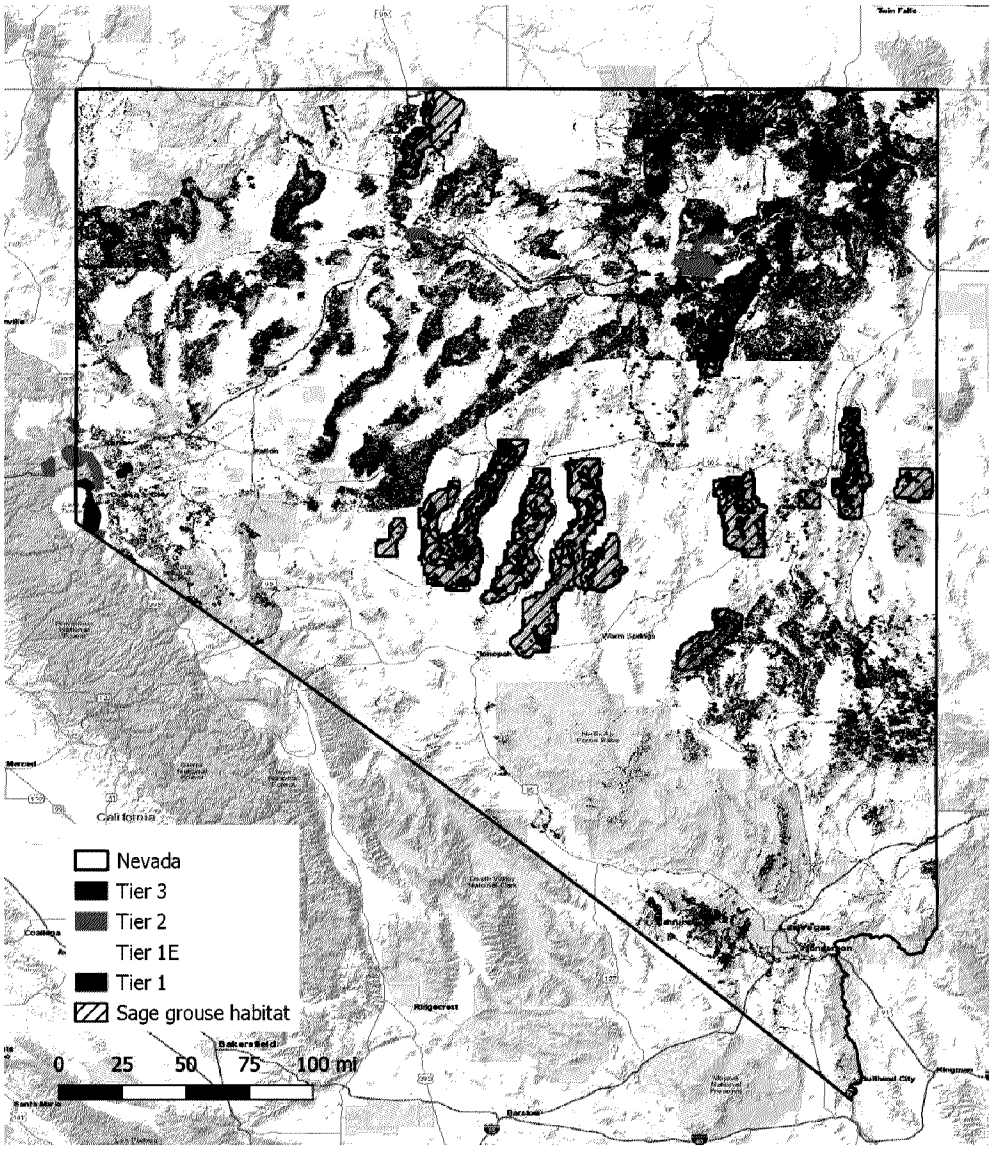


Figure B11. Sage Grouse Habitat Relative to NV Energy's Current and Proposed Fire Risk Tiers

[6] https://hub.arcgis.com/maps/c436a3d49b204edbbab5ac14e9216d8f/about

Watershed / drinking water

The USFS Forests to Faucets data for surface and ground water watersheds are shown in Figure 5 and Figure 6, respectively.

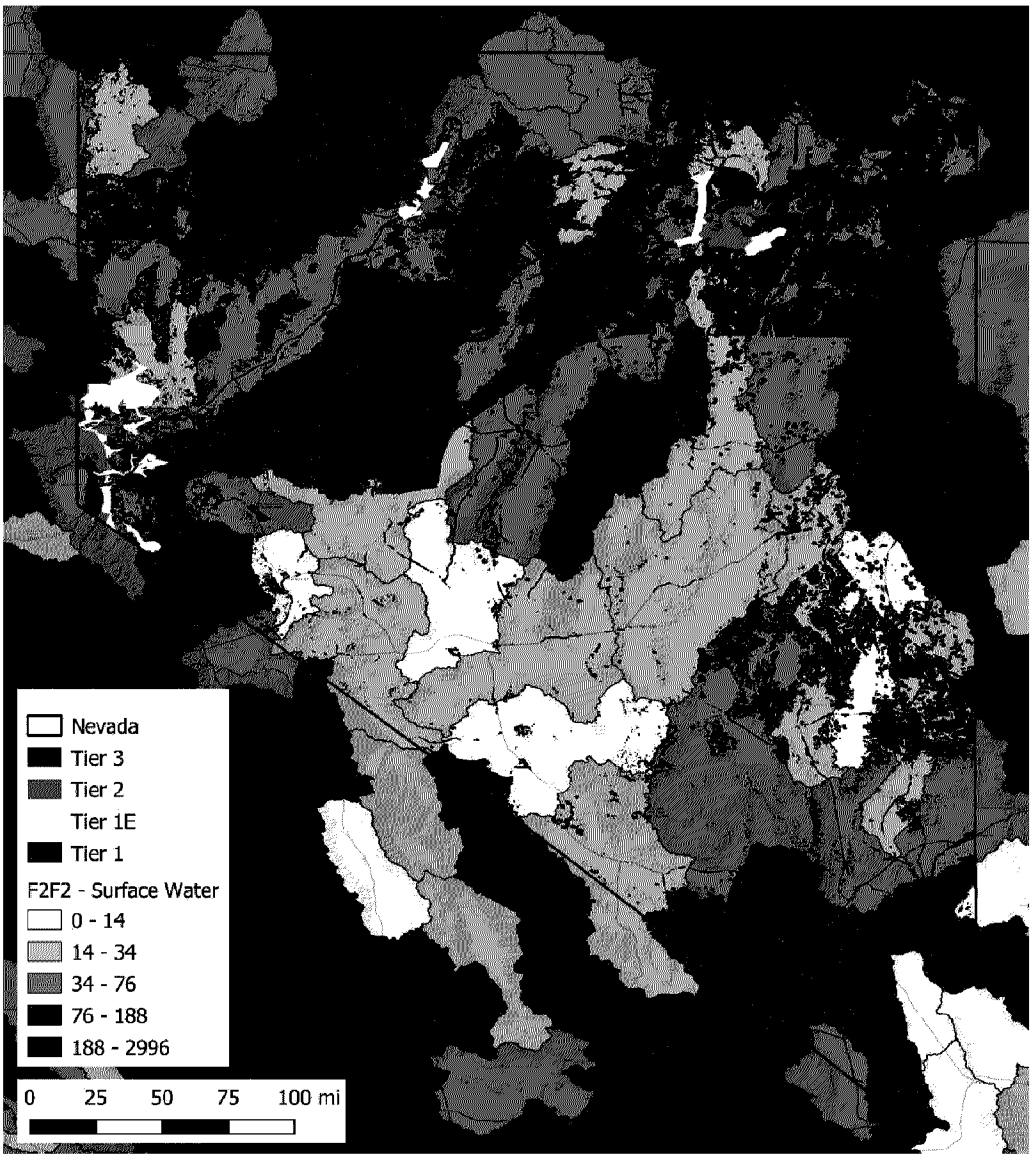


Figure B12. USFS Forest to Faucets Surface Water and NV Energy's Current and Proposed Fire Risk Tiers

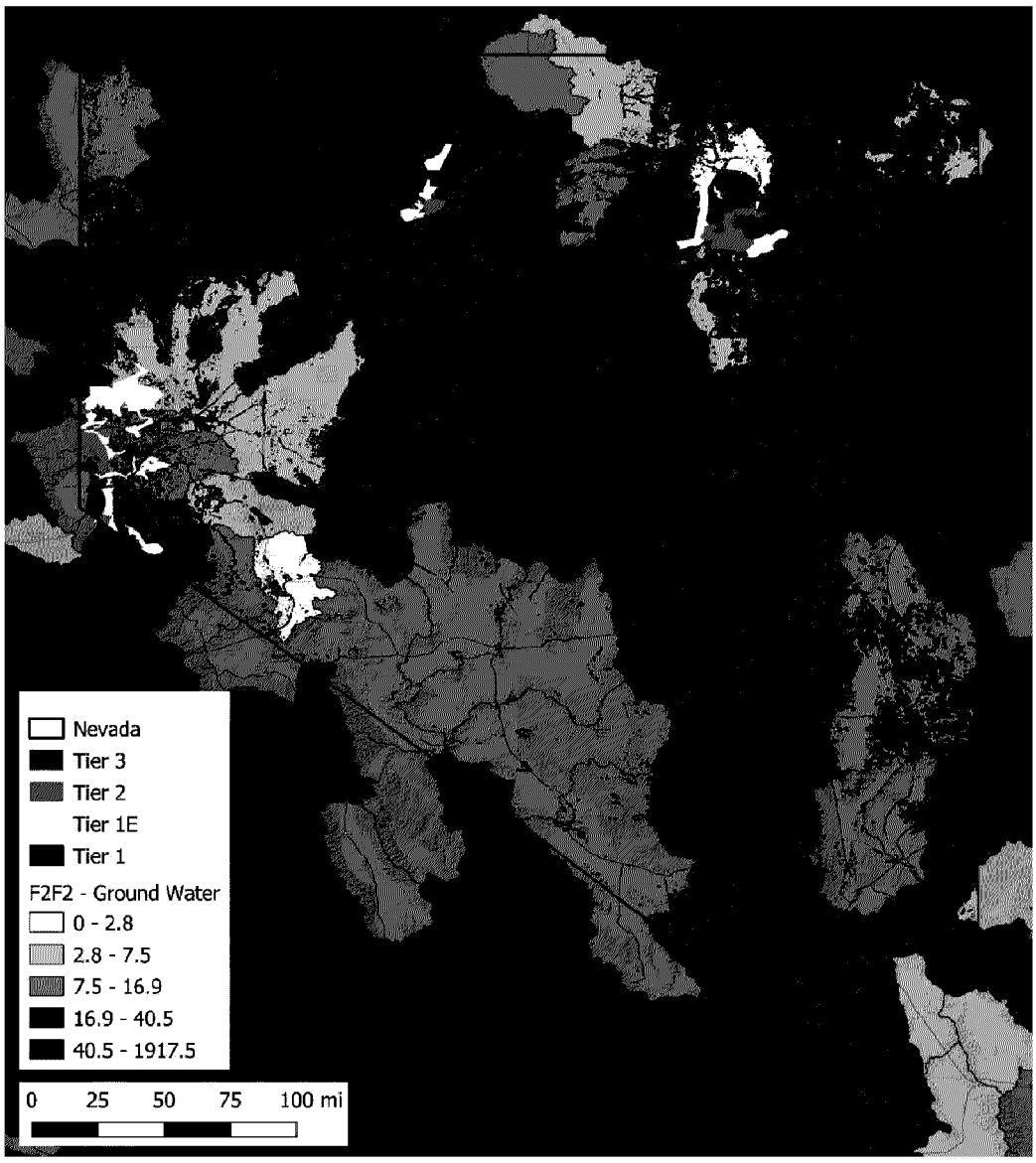


Figure B13. USFS Forest to Faucets Ground Water and NV Energy's Current and Proposed Fire Risk Tiers

Timber

Areas with standing timber, as determined from LANDFIRE 2.2.0[7], are shown in Figure 7.

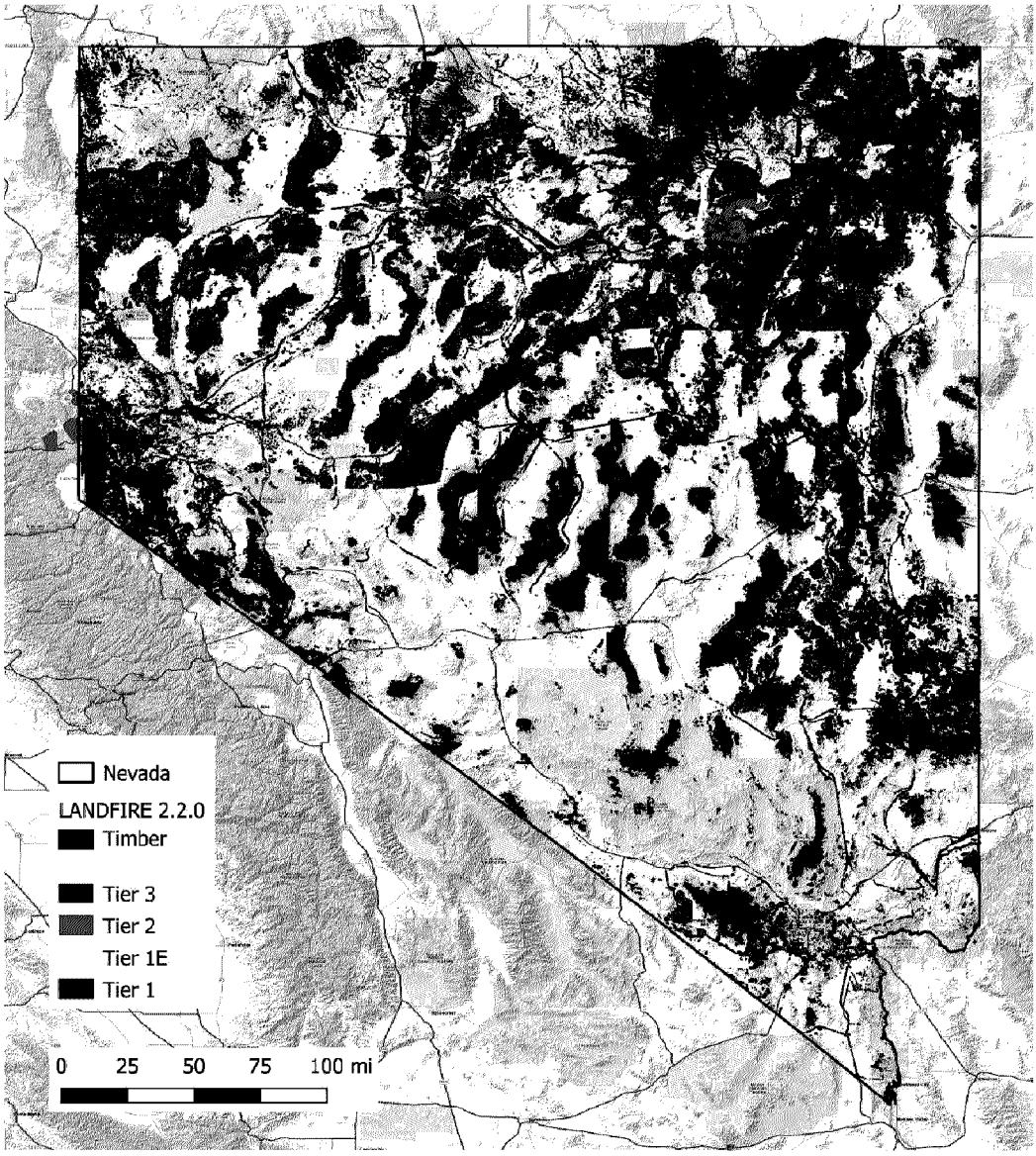


Figure B14. Locations with Standing Timber Relative to NV Energy's Current and Proposed Fire Risk

[7] https://landfire.gov/

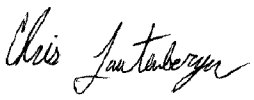
Discussion

Based on the data and maps presented above:

- There is significant wildland fire history, both in terms of the number of ignitions and burned area, within NV Energy's proposed Tier 1.
- NV Energy's proposed Tier 1 captures heightened fire risk associated with impacts to assets at risk beyond structures due to overlap between the Tier 1 areas and grazing allotments, sage grouse habitat, surface and ground water watersheds, merchantable timber, etc.

Additionally, fires do not have to be large to cause large scale losses. As an example, the 2014 Boles Fire in burning through Weed, CA consumed only 516 acres but destroyed 165 structures[8].

Sincerely,



Christopher W. Lautenberger, PhD, PE

[8] https://www.fire.ca.gov/incidents/2014/9/15/boles-fire/