BEFORE THE WASHINGTON

UTILITIES & TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

Complainant,

v.

AVISTA CORPORATION, d/b/a AVISTA UTILITIES

Respondent.

DOCKETS UE-240006 & UG-240007 (*Consolidated*)

CROSS-EXAMINATION EXHIBIT OF DAVID R. HOWELL ON BEHALF OF THE WASHINGTON STATE OFFICE OF THE ATTORNEY GENERAL PUBLIC COUNSEL UNIT

DRH-__X

Avista Discovery Response to Public Counsel Data Request No(s). 321-357

September 16, 2024

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

JURISDICTION:	WASHINGTON	DATE PREPARED:	06/10/2024
CASE NO.:	UE-240006 & UG-240007	WITNESS:	David Howell
REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 321	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Direct Testimony of David Howell

REQUEST:

Has Avista updated its Outage Management System (OMS) since its previous GRC? If not, when does it anticipate updates being completed?

RESPONSE:

We have not updated our Outage Management System (OMS) in any significant way since the last General Rate Case (GRC). The OMS will be "updated" with our adoption of the new Advanced Distribution Management System (ADMS) since we will no longer be using our current Outage Management Tool (OMT). This OMS cutover is anticipated to take place sometime in 2025 due to the fact that one of the key features won't be available until then.

With regards to wildfire, Avista does not currently specifically track ignition within the reliability metrics. However, it is the intention to track outages associated with "heat-release" events in the new ADMS, the new feature we are awaiting.

AVISTA CORP.
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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	Staff – 322	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Direct Testimony of David Howell

REQUEST:

Is Avista using any reliability metrics to track outages and ignitions from trees outside of the utility corridor?

RESPONSE:

Our outage management system tracks all outages where tree was determined to be the source cause of the incident, the service points associated with the incident, and the location of the isolating device that operated, but does not record information specific to the tree's exact location or if the tree was inside or outside of the utility corridor.

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 323	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Direct Testimony of David Howell

REQUEST:

Please provide further details for how Avista is working with other utilities to create a fire risk map for all western states.

RESPONSE:

Avista is working with a consortium of west coast utilities to create a regional wildfire risk mapping tool. This tool will focus on a dynamic risk assessment that takes into account weather forecasts, wildfire growth modeling, asset condition, and long-term risk assessments of wildfire potential in areas across the western states. The goal of this project and having a consortium of utilities is to build a consistent approach to defining the who/what/where/when of wildfire risk so we all can better understand how one utility compares in risk and related mitigation to another, including sharing best practices and lessons learned. Currently very few private vendors offer a comprehensive model and do not allow for the sharing of risk assessment from one utility to another. This makes understanding how we might affect mitigation efforts proportional to our risk very difficult. Every service territory is different, and each has unique wildfire risk and consequences. However, by collectively approaching this model under one consortium and sharing data, we will be able to attack this challenge with confidence that utilities are taking reasonable mitigation steps towards protecting their assets and neighboring communities from the threat of wildfire.

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 324	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan
REQUEST:
Avista's 2023 Wildfire Resiliency Plan shows actual, expected, and projected capital and O&M costs for each wildfire plan program.

a. Please provide the wildfire program cost summary tables in Howell's Exhibit DRH-2 in Excel format (Table 10 at 23, Table 14 at 26, Table 15 at 29, and Table 16 at 31) with underlying formulas intact that provide the basis for these costs.
b. Please explain the basis of projected cost estimates for each of the wildfire programs.
c. Please provide in Excel format the actual, expected, and projected number of units, quantities, wildfire metric targets, and other data that fall under each wildfire program for years 2020–2029.

RESPONSE:
a.-c.
Please see PC-DR-324 Attachment A - Budget Data for a spreadsheet indicating our current Wildfire budget, including formulas, the basis for the projected cost estimates, and the expected number of units (either annually or by the end of the ten year period of 2020 to 2029) for those programs that have this information available.

The 2023 Wildfire Plan indicated projections for 2023 to 2029. The latest attached budget contains the actual values for 2023. In addition, some elements of that budget have changed since this report was submitted. For example, midline recloser and substation automation work has been moved out of Situational Awareness and into Operations and Response. To help identify the differences, the first tab of the spreadsheet (columns O to Z) shows the tables as in the 2023 Wildfire Plan with an explanation for the differences (provided in column AA).

Wildfire projected expenditures are based on existing or historical costs and program achievements (for example, existing employee labor costs or how many units were replaced in previous years), as well as contractual agreements (such as satellite and LiDAR imaging), the amount of work that can be accomplished based upon the funding approved in each year's budget, and historical work and expenditures. The Wildfire actual budget is set each year based upon guidance provided by the Capital Planning Group and final approval by the officers and Board of Directors. This budget is updated each year, and our programs are funded based upon these annual allocations. Information about these line items is provided in Column N to help explain the premise for the allocations.

Some programs do have set final targets (through 2029), and these are shown in the second tab of the spreadsheet along with a brief explanation. All work projections are subject to some level of uncertainty. Certain projects have delayed due to inadequate crew resources, weather conditions and significant supply issues. These issues have impacted Avista as they have most businesses and may be reflected in actual versus budgeted expenditures. Thus, most programs do not have long term projected units, quantities, and targets but instead have targets for the current upcoming year when there is more budget certainty.

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 325	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Plan

REQUEST:

Please provide the Company's tracked fire-related performance data for 2021-2023 in Excel format.

RESPONSE:

Please see PC-DR-325 Attachment A.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 326	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista states that one of the goals of its Wildfire Resiliency Plan is to, "Protect Avista's energy delivery infrastructure and mitigate the probability and consequence of direct financial and liability costs associated with large-scale fire events." What risk-based analysis did Avista perform as part of its Plan? What is the source of the data for any risk-analysis completed?

RESPONSE:

Avista initially contracted with the Core Logic Consulting Group to conduct a risk analysis to ascertain the risk impact of a single large wildfire event. Core Logic's analysis was based on historic observation and was limited to the impact to property. This exercise was conducted to provide a baseline for the subsequent Subject Matter Expert (SME) risk workshops and to determine if Avista's liability insurance levels were adequate to protect against a single large event. However, it did not include the potential for loss of life, injury, fire suppression, timber loss, and other economic loss factors. In order to estimate these additional risk-cost values, Avista convened a series of Wildfire Workshops in May of 2019. Six workshops were held over a 15-day period involving over 30 participants. These workshops included employees from Wildfire, Risk Management, Asset Management, Electric Operations, Transmission Design, and Distribution Engineering.

During the 2019 workshops, participants were asked to consider the unmitigated impact of wildfires and then to consider the effect of mitigation strategies such as replacing wood crossarms with fiberglass units to reduce the risk of pole fires or expanding Avista's risk tree inspection and removal program. Company subject matter experts (SMEs) were tasked with quantifying the inherent/existing risk of fire versus the managed risk of deploying mitigating strategies while considering factors including safety, impacts to customers, and competing costs. Solutions to address wildfire risks, when possible, included re-tasking or retooling existing programs to pivot from strictly reliability-based measures towards inclusion of mitigating the risk of wildfire. They were asked to consider the probability of a wildfire event and the resulting financial impact based on three scenarios each for Transmission: general wildfire risk, tree fall risk, and the risk of all other sources creating wildfire probability (including animal events, lightning, etc.) For Distribution three scenarios were considered including nominal weather events, 40 mph wind events, and 60 mph wind events. For both parts of the system, the experts were asked to consider both the probability of a wildfire event under the various scenarios, and the resulting financial impact from such an event. The experts were tasked with providing both optimistic and pessimistic estimates, which is why there is a range in the risk table shown. That is, they assigned a cost to the lowest potential financial impact of a 40 mph wind, for example, as well as the highest potential financial impact related to such an event. For another example, the team looked at wildfire impacting the transmission system, such as a small fire that may damage four structures at a cost of approximately $160,000 in repairs (best case) or destroy those structures

and damage the conductor and associated equipment at a cost of approximately $2,000,000 (worst case). This analysis was based upon the expertise and knowledge of the individuals conducting the analysis as well as historical events experienced by the Company.

For more information about the risk calculations, please see Attached Spreadsheet PC 335 Financial Risk Matrix.xlsx.

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 327	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista states that one of the four categories within its Resiliency Plan is "grid hardening to reduce the potential for spark ignition events and make the system more resilient." Please explain how this potential for ignition is measured. What events are included as "spark-ignition events"?

RESPONSE:

A spark ignition event results when uninsulated conductors are contacted by foreign objects such as trees or branches, equipment failure which produces an electrical short circuit, or when wildlife comes into adverse contact with energized facilities. Energy release is associated with electric arcing and may cause fire ignition. These events have not been specifically tracked over time. The Company has not explicitly tracked wildfires in the past because our current outage management data is based upon cause, not impact, with the goal of repairing or replacing equipment that has caused or could cause an outage rather than collecting resulting impacts.

Currently fire information must be obtained by looking through the dispatcher comments in the OMS. This will be the methodology used until we replace our outage management system within the next few years (the target date for this is 2025). The types of events included in the comments such as "saw burn marks" or "burned off jumper" and other comments or events that common sense indicates could be related to a fire or which could have potentially started a fire are tagged as spark events, even though very few actually result in fire. The fact that they have the potential to have caused a spark or a fire is a measure that helps us identify the efficacy of our wildfire programs.

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REQUESTER:	Public Counsel	RESPONDER:	Ken Sweigart
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 328	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista states that the "replacement cost of a single transmission structure can be $50,000 or more" but notes that "transmission outages are infrequent (low probability)." Please provide the number of transmission poles destroyed by fire from 2019 to present. How many poles require replacement to have a statistically measurable effect for fire risk reduction?

RESPONSE:

Since 2019 Avista has lost 215 transmission structures to wildfire (the structures lost included single poles, H-frames, and single pole triples). We have approximately 22,230 structures on the system and approximately 8,550 are steel, so we have 38.5% of structures not at risk of fire. Each structure we replace reduces that percentage by 0.0073%.

The vast majority of electric outages occur on the distribution system, but the impact to customers is typically restricted by line-fuse action (limiting outages to an average of 51 customers typically). Transmission outages are infrequent (low probability) but can impact many more customers (the average number of customers affected by a transmission outage is 615). In addition, loss of transmission infrastructure has the potential to impact our neighboring utilities and the stability of the Western Interconnection as well as our ability to move power from our powerplants to load centers.

From a fire prevention standpoint, the distribution system is the ignition source for most utility-related fires. However, as the transmission system is a critical part of Avista's grid and ability to serve customers, and because an outage can impact a large number of customers and repairs can be incredibly costly, a primary focus of the Wildfire Plan is protecting the transmission system from the impacts of wildfire in addition to trying to mitigate the risk of transmission-related fires. Though the risk of wildfire caused by transmission tends to be low, one of the deadliest utility-related fires in history, California's Camp Fire, which burned 150,000 acres, killed 85 people, and destroyed two towns, was caused by a failed transmission structure. The California Public Utility Commission (CPUC) recently reported that approximately 10% of the state's wildfires involved these electric powerlines, but that 50% of the state's deadliest fires involved utility ignition. It is reasonable and prudent that this is an important component in Avista's wildfire strategy. Currently about 4,858 of Avista's transmission structures reside in WUI 2 or 3 areas, of which 2,283 are wood. It is our goal to replace all of these at-risk wood poles with steel by 2029. We believe that protecting our customers from the impacts of wildfire in their communities and protecting the infrastructure that serves them has value far beyond statistically measurable impacts. It is industry best practice because it is the right thing to do.

For more information about transmission and wildfires, please see Hamid R. Sayarshad's study, "Preignition risk mitigation model for analysis of wildfires caused by electrical power conductors," at Preignition risk mitigation model for analysis of wildfires caused by electrical power conductors - ScienceDirect

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		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista names several types of ignition sources: "tree contacts…animal contacts, equipment failure, and electrical pole fires." Please provide the total annual counts for each source which resulted in either an ignition event or fire for the past 15 years. Please provide the annual frequency of each ignition source, by wildfire risk zone area, for the past 15 years.

RESPONSE:

Avista's Outage Management System (OMS) is used to track electric outages including causation information such as: tree fall-ins, car-hit-pole, wind, animal, underground cable, overhead equipment, pole fires, etc. Fire is listed as an outage category, but generally relates to structure fires and is not typically related to Avista equipment but utilized when fire crews request de-energization of a distribution line for safety. The OMS was designed to record actual events based upon cause, not impact, with the goal of repairing or replacing equipment that has or could lead to an outage. Currently we can use the OMS dataset to capture probable spark-ignition events by searching the text strings of dispatcher comments. Issues that did or could have potentially caused a fire such as conductor burned down, burned up fuse or connector, etc. are noted and counted as "spark events." Though most of these did not result in a fire (and again, we may or may not know that such an event caused a fire unless the dispatcher happens to note that) it is important to track even potential for spark events, as our Wildfire Resiliency efforts are aimed directly toward reducing the number of these events and that potential. The current OMS is not designed to capture wildfire events so we do not know with any accuracy if an outage leads to an ignition or a wildfire. The OMS will be "updated" with our adoption of the new Advanced Distribution Management System (ADMS) with a cutover anticipated to take place sometime in 2025. This new system will track outages and fire events.

In the meantime, we have provided the outages by reason in which we counted the event as a spark event based upon the potential for the issue to create an arc or spark. These outages are shown in PC-DR-329 Attachment A - Equipment Outages with Spark Notation. The OMT captures the service points associated with the incident and the approximate location of the isolating device that operated. It does not have the ability to capture wildfire risk zone.

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		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Of Avista's capital expenses, "electric grid hardening…accounts for about 88 percent of capital spend over the ten-year period." For each category of resiliency plan spending, please provide an estimated percentage for how much these measures reduce the risk of wildfire. What is the level of risk reduction for O&M expenses versus capital spending? Within capital expenditures, how much risk reduction benefit is there on a per mile basis compared to other expenditures, e.g., vegetation management vs. undergrounding?

RESPONSE:

Avista's Wildfire Resiliency Plan has four primary areas of focus: Grid Hardening, Enhanced Vegetation Management, Situational Awareness, and Emergency Operations and Response. Each of these elements contains programs and strategies designed to address safety for human beings and the infrastructure that serves them, and each of these areas represent an important aspect of wildfire resiliency and reducing wildfire risk. These elements are also part of the wildfire plans of our contemporaries, as they are considered best practice in the utility industry. While all add risk reduction value, some have a greater impact on reducing risk than others, such as the direct risk reduction offered by hardening our system, replacing aged or outdated equipment, adding devices to monitor and control equipment, and managing risk trees, compared to the more indirect reduction offered by cross-training, partnerships, or customer outreach. Our expenditures are structured accordingly.

Grid Hardening is the single largest capital investment of the Plan as it is equipment intensive. Our grid hardening work is focused in the highest fire risk areas, where fuels combine with housing/population to increase the risk level of fires. This work is focused on both the distribution and transmission systems with measures designed to reduce spark ignition events.

On the distribution system, we are working on replacing wood crossarms with fiberglass, replacing small and outdated (such as small copper) conductor, installing wildlife guards on line cutouts, installing lightning arrestors, placing steel distribution poles at critical points (sharp corners, river/railroad/highway crossings, etc.), replacing obsolete equipment and devices, replacing old poles based on condition, eliminating uninsulated open wire secondary conductors, installing wedge connected stirrups to provide protection and strength at hot tap connection points, and undergrounding conductor when cost-justified. This work not only reduces the chance of our equipment starting a fire, but also makes it more resilient in general.

Transmission grid hardening encompasses a combination of capital and O&M programs. The steel pole replacement program is focused on making the transmission system resilient to wildfire by replacing wood poles in high canopy, high fire threat areas with steel poles. This is the capital portion of this program. On the O&M side, we are wrapping wood poles in low vegetation areas with fire resistant mesh wrap and

enhancing our transmission-related inspections to include elements specific to vegetation issues and wildfire risk. All of this work reduces the risk that our transmission system will experience a failure or other issue that could result in a wildfire.

Enhanced Vegetation Management is primarily an O&M expenditure and is the largest such expenditure in our Plan. The strategy of mitigating risk trees across the system is an industry best practice. Vegetation can be a primary cause of wildfires when it comes into contact with energized electric facilities, which is the primary driver for utilities to focus on in Wildland Urban Interface (WUI) areas for wildfire mitigation efforts. At Avista, our wildfire-related vegetation work enhanced our existing vegetation management practices to focus more specifically in elevated fire threat areas. Avista's Wildfire Enhanced Vegetation Management goal is to perform risk tree inspections across 100% of the transmission and distribution systems every year. This program aims to identify dead, dying, diseased, or defective trees within strike distance of a powerline and remove that tree as quickly as possible. The Vegetation Team has the goal of removing risk trees within six months of identification if at all practicable.

The Wildfire Plan also added new technologies to our vegetation work including LiDAR inspections for the transmission system and satellite digital data collection for the distribution system, which are primarily O&M expenditures. We believe that the detailed, over-time analysis provided by these tools will change the way our Vegetation Management programs are managed. Because these images are taken on a regular basis, they show us where vegetation risk exceeds both reliability and fire mitigation thresholds and give us valuable information regarding the location of problem (or potential problem) vegetation issues over time. The analysis provided is invaluable in directing planners and line clearing crews to specific locations on the system to perform maintenance and mitigate risk trees rather than the traditional method of working on an entire circuit or polygon, thus giving us the ability to send crews to the areas of greatest need with accuracy. We believe that this streamlines our vegetation work and maximizes the value of the budget provided.

Our Situational Awareness strategies currently contain the tools and resources we use to identify risk. Automation equipment, discussed below, was recently moved into the Operations and Response category to better fit the purpose. These tools include our Fire Weather Dashboard and WUI map which have limited capital budget assignment as most of this work is done by existing employees within their regular duties. Though there is a limited budget for this category, the ability to identify both static risk (via the WUI map) and dynamic risk (via the Dashboard) are invaluable in allowing the Company to both recognize and react to increasing fire risk.

Operations and Response is capital intensive because it now includes both midline recloser and substation automation equipment, key protection devices out on the powerlines and within substations that can be monitored and operated remotely to quickly respond to fire weather. Automation equipment provides "eyes" on some of our most critical infrastructure in high fire threat areas. Without this equipment, many circuit breakers do not support monitoring or control, which means they cannot be remotely monitored or operated, requiring manual intervention to make changes to settings or to identify an issue. This may take several hours depending on location and crew availability. In fire weather conditions, this delay is unacceptable. This equipment allows operators to remotely reconfigure protection settings and implement Fire Safety modes. This represents the state of the art with respect to electric distribution operations to mitigate the risk of fire combustion. In fact, the California utilities, leaders in wildfire mitigation, are actually behind Avista in adopting this strategy and have only begun to utilize it extensively in the past couple years. Avista was a pioneer in the use of enhanced protection settings and has continued to make enhancements to Fire Safety Mode to increase its effectiveness and mitigate risk. California and Oregon Utilities are beginning to rely more heavily on enhanced protection settings to minimize the use of PSPS, causing the use of PSPS in California to dramatically decline in the last few years as a result. As an example,

in 2023 SCE installed 15,700 current-limiting fuses and deployed about 100 remote-controlled automatic reclosers to respond more quickly to faults. They call this "enhanced powerline safety settings (EPSS)."[1] PG&E believes that this strategy has a direct impact on fire reduction, stating that in 2022 they saw a 68% reduction in ignitions on their EPSS powerlines.[2] BPA also has a non-auto-reclosing strategy for use in high risk areas.

We have not calculated risk reduction on a per mile basis, defined the precise percentage they will reduce wildfire risk, or proportionally separated their benefit by budget area. These plan categories and our proportional expenditures for each mirrors what other utilities are doing as well as what is considered industry best practice and are prioritized based upon our perception of risk and our informed judgment about the potential each program brings to reduce this risk.

[1] For more information on EPSS: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/fact-sheets/epss-fact-sheet.pdf and https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52661&shareable=true and Microsoft Word - Redline Draft New and Amended Utility Regulations Policy Paper - 1.22.24 - SS (ca.gov)
[2] Enhanced Powerline Safety Settings (pge.com)

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 331	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista's budget "includes fuel-reduction partnerships, transmission fire-resistant pole wraps, the Fire Weather Dashboard, and the public Safe Tree customer initiative." What has each of these initiatives contributed to Avista's ability to reduce wildfire risk? Please provide a quantitative assessment of risk reduction for each initiative. Avista notes that "the majority of operating expense items are on-going and are generally related to the risk-based Enhanced Vegetation Management Program." How is risk assessed and what data are used to make this determination?

RESPONSE:

Fuel Reduction Partnerships are in place with agencies who share a vested interest in wildfire fuels mitigation, including providing funding to local agencies to help reduce fuels on their properties near our facilities as discussed in Howell's testimony. Avista is actively working with the Washington Dept. of Natural Resources, Idaho Dept. of Lands, the U.S. Forest Service, the Nez Perce Tribe, and local and regional fire agencies including the Bonner County Department of Emergency Management. Each year we provide funding to these external agencies to reduce the amount of vegetation on land they manage that is within our service territory and near our facilities, areas considered at high risk for fire activity. Work includes partnering with the Washington State Dept. of Natural Resources (DNR) to assist our customers in completing hazardous fuel reduction treatments on their property. The DNR has a well-established program that involves forestry consultation, treatment prescription and cost sharing assistance to remove small diameter trees and brush from around homes and other structures that could be impacted by wildfire. This work has been proven to decrease the intensity of wildfire fires by augmenting vertical and horizontal fuel arrangements on the landscape.

Avista uses Genics Fire Mesh wood transmission pole wraps, a wire mesh treated with an intumescent coating that, when exposed to extreme heat, rapidly expands to form a barrier between the fire and the wood pole. These wraps help prevent low-burning fires from accessing wood poles, protecting them from damage or destruction. Mesh is more durable than the fire-resistant paint and is considerably less expensive than replacing a wood pole with steel. At Avista, pole wraps are used in areas subject to routine grassland or sage-shrub fires. These wraps do not reduce the risk of fire but reduce the risk of a wood pole being destroyed by fire and supports reliable operations during a wildfire event.

The Fire Weather Dashboard is our primary tool for identifying transient fire danger potential on our system. It is a risk-based computer program that combines the National Weather Service 7-day weather forecast with Avista equipment performance, historic outage levels, time of year, drought conditions, type of vegetation and moisture levels, sustained wind and wind gusts, and more. It indicates the risk level for the upcoming week and highlights the maximum expected daily risk for each individual circuit on Avista's

distribution system, helping the Company plan accordingly. It also indicates when fire spread rates pose significant risk to neighboring communities. This allows Avista to make better operational decisions as to when electric facilities should be placed in any kind of elevated fire mode in order to enhance operational safety during high fire threat conditions. This tool also assesses the minimum timeframe needed to help mitigate the fire risk of a weather event, allowing Avista to move out of the elevated operational mode as quickly as possible after the event has passed to a more reliability-focused operation, helping moderate the tradeoff in reliability for customer safety.

The Customer Safe Tree Program works proactively with customers in elevated fire threat areas who have tall-growing trees under or adjacent to our powerlines on their property. The Safe Tree Program removes non-compatible vegetation (i.e., likely to grow into powerlines), cleans up the debris, and replaces the previous tree with a low-growing species of the customer's choice if the customer wishes to do so, all at no direct cost to the customer. Replacement trees will be low growing species that mature to a height that will not interfere with overhead powerlines and should not require ongoing trimming or maintenance to keep them from becoming hazards to powerlines. This work naturally reduces the risk of a customer's tree getting into powerlines and starting a fire or leading to an outage through removal of these risk trees.

Avista's Enhanced Vegetation Management program is based on industry best practice. Vegetation that comes into contact with an energized conductor due to weather events can be a significant cause of wildfires, which is the primary driver for utilities to focus in on Wildland Urban Interface (WUI) areas for wildfire mitigation efforts. At Avista, our wildfire-related vegetation work enhanced our existing vegetation management practices to focus more specifically in elevated fire threat areas. Avista's Wildfire Enhanced Vegetation Management goal is to perform risk tree inspections across 100% of the transmission and distribution systems every year. This program aims to identify every dead, dying, diseased, or defective tree within strike distance of a powerline and remove that tree as quickly as possible. The Vegetation Team has the goal of removing risk trees within six months of identification if at all practicable.

Each of our primary Wildfire Resiliency Plan elements, as described above, are designed to reduce the chance of our facilities starting a wildfire and/or to maintain customer reliability through protecting the infrastructure that serves our customers. These programs are based upon our informed judgment, best practices utilized by our peers, and our expertise in understanding the risks specific to our service territory rather than specific risk calculations.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

JURISDICTION:	WASHINGTON	DATE PREPARED:	06/18/2024
CASE NO.:	UE-240006 & UG-240007	WITNESS:	David Howell
REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 332	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista states that it "recognizes a potential for cost savings and cost shifts from operating and maintenance expense towards capital investment." Please provide further details of the estimated savings for both O&M and capital expenditures on an annual basis. How many fewer trucks and people are used by transitioning to remotely deployed equipment?

RESPONSE:

As explained in Howell's testimony, the Company recognizes a *potential* for costs savings and cost shifts from operating and maintenance expense towards capital investment. This is based upon informed judgement regarding traditional company operations and common sense estimations. For example, fewer risk trees on the system should lead to fewer vegetation-related outages and the requirement for crews to go out and make repairs. This is also true for failures related to outdated equipment such as small conductor, for animal related outages that can be reduced with the installation of wildlife guards, or for repairs related to pole fires, the number of which should be reduced by installing fiberglass crossarms. Eventually it is believed that our digital data collection can nearly fully supplement manual inspections, but we have not yet reached that point. Thus, the overall impact of cost savings and cost shifts will not be well understood until longer-term performance data can be obtained and analyzed. However, one of the objectives of this plan is to reduce the number of equipment failures and tree-related outages and by doing so, avoid emergency response and customer outage costs. These costs would include truck rolls, emergency repairs, reduced field inspections, etc. As described in the testimony, the impacts of these potential cost shifts will require experience and long term data to determine. We do not yet have the data nor have we conducted the analysis that tracks the number of trucks or people impacted by these programs.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 333	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista states that one of the objectives of [its] plan is to reduce the number of equipment failures." How frequently do equipment failures result in wildfire? How are "equipment failures" categorized?

RESPONSE:

Equipment failures, vegetation contacts, wind, snow, and lightning are significant contributors to faults, and each line fault represents interruptions to our customers' electric service and the potential to create a spark that may result in a fire. It is widely understood that utility equipment has the potential to start wildfires, with two common causes being downed electric power lines as the result of interactions with external forces such a weather events or aging equipment that malfunctions as it fails and creates sparks.[1] The Department of Energy states that about 10% of wildfire ignitions are the result of faults or equipment failure.[2]

Our current Outage Management System (OMS) does not specifically track outages that result in a wildfire, as this system collects causation information such as: tree fall-ins, car-hit-pole, wind, animal, underground cable, overhead equipment, pole fires, etc. Fire is listed as an outage category, but generally relates to structure fires and is not typically related to Avista equipment. The OMS was designed to record actual events based upon cause, not impact, with the goal of repairing or replacing equipment that has or could lead to an outage. Currently we can use the OMS dataset to capture probable spark-ignition events by searching the text strings of dispatcher comments. Issues that did or could have potentially caused a fire such as conductor burned down, burned up fuse or connector, etc. are noted and counted as "spark events."

Equipment failures are categorized sub-reason as listed below:

Arrester
Bus Insulator
Capacitor
Conductor - Pri
Conductor - Sec
Connector - Pri
Connector - Sec
Crossarm
Crossarm-rotten

[1] InterFire Online, "Investigating Wildfires: Part 2," https://www.interfire.org/features/wildfires2.asp
[2] U.S. Dept. of Energy, "Wildfire Mitigation Webinar Series," https://www.energy.gov/oe/wildfire-mitigation-webinar-series

Cutout/Fuse
Dig In
Elbow
Highside Breaker
Highside Fuse
Highside Swt/Disconnect
Insulator
Insulator Pin
Junctions
Lowside OCB/Recloser
Lowside Swt/Disconnect
Other
Pole Fire
Pole-rotten
Primary Splice
Recloser
Regulator
Relay Misoperation
Switch/Disconnect
Termination
Transformer
Transformer - OH
Transformer UG
Undetermined
URD Cable - Pri
URD Cable - Sec
Wildlife Guard

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 334	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista relied on its "Wildfire Steering Group" for "critical qualitative and contextual information that…shaped…recommendations." What data did this group use to inform and justify spending recommendations?

RESPONSE:
As noted, this group utilized *qualitative* and *contextual expertise* to help shape the initial Wildfire recommendations. This was accomplished by involving subject matter experts and key stakeholders from around the Company to develop an initial plan based on their operating experience, information gained from their external contacts (such as the Commissions), knowledge of risk, relevant historic outage data and equipment failures, and other factors. Members of this steering group represented the breadth and depth of the plan including representation from Operations, Regulatory Affairs, Risk/Insurance, Legal, and Environmental. They also called upon experts from the following areas for development of the plan and implementation strategies:

Distribution Vegetation Management
Transmission Vegetation Management
Electric Serviceman
Distribution Engineering
Transmission Design
Emergency Operations
System Planning
Transmission Operations
Communications
Asset Management
Real Estate
Claims
Tribal Relations
Supply Chain Contracts
Internal Audit
Real Estate (Property)
Government Relations
Regional Business Managers
Relicensing

Working together, sharing ideas and insights as well as experience, these individuals helped create the initial Wildfire Resiliency Plan recommendations.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 335	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista cites that according to its "2022 wildfire risk analysis…risk exposure of utility involved wildfires related to Avista ranged from $490 million…to $4.7 billion…of accumulated risks." Please provide the calculations used to compute these risk estimates in Excel format.

RESPONSE:

Please see attachment PC-DR-335 Attachment A - Financial Risk Matrix.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 337	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

How were the figures for each "operating horizon" calculated? Please provide the raw data used in Excel format.

RESPONSE:

Please see the Company's response to PC-DR-335.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 338	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista explains that "risk scores indicate a bounded range because the probability of occurrence is based on the frequency of forced outages." Please provide additional details for how risk scores are calculated along with accompanying examples.

RESPONSE:

See the Company response to PC-DR-335.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 339	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista notes that its "distribution grid hardening work includes replacing wood crossarms with fiberglass." Please provide the frequency with which wood crossarms result in wildfire. What is the replacement cost?

RESPONSE:

As we developed the Wildfire Program, we used pole fires as the proxy for pole crossarm fires as we do not track the failures in our Outage Management System (OMS) to that level of granularity. On average, Avista experiences about 80-90 pole fires per year mostly related to wood crossarms according to our crews. By replacing wood crossarms with fiberglass units, leakage current from buildup of foreign debris is substantially reduced, and pole fire risk is much lower. In fact, a recent survey of 63 utilities in North America found that the primary cause of pole fires is just that – leakage current tracking across the porcelain insulators and wood crossarms due to contamination (such as dust) being deposited on the surface, leading to small arcs that can ignite. Fiberglass crossarms have high insulating value and are naturally fire-resistant.[1] Every pole fire has the potential of migrating to the ground and leading to a fire event, something we are trying to prevent by replacing wood crossarms with fiberglass.

The average crossarm replacement cost is $1,486 each. This average is based on the pole/crossarm configuration and the number of phases on the crossarm, replaced in an energized state. The cost of digging and removal of the old pole is included in the cost. This average cost is based on actual unit pricing from Avista's current line crew contracts which were competitively bid. Material costs are based on actual costs incurred over the last two years. This cost does not include the following:

- Overheads and taxes
- Design and planning

Average Fiberglass Installation Cost	$1,169.13
Average Cost -Fiberglass Cross Arm DE, 9' w/guy attachment	$317.01
Total Average Replacement Cost	$1,486.14

[1] "National Survey Takes a Look at Pole Fire Causation and Mitigation," T&D World, November 11, 2019, National Survey Takes a Look at Pole Fire Causation and Mitigation | T&D World (tdworld.com)

AVISTA CORP.
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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 340	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista notes that its "distribution grid hardening work includes…replacing small and outdated conductor." Please provide the frequency with which conductors result in wildfire. What is the replacement cost?

RESPONSE:

Much of the small copper wire such as #6 and #8 was installed prior to 1950, with some wire sections dating back to the early 1900s. These old and obsolete wire types fail at higher rates than do modern aluminum conductors, which is why it has become an industry best practice to replace them. For example, one of PG&E's wildfire lawsuits specifically identified "small, obsolete conductors" as being highly susceptible to failure and more sensitive to inclement weather conditions than standard size conductors."[1] Southern California Edison has been actively replacing small and outdated conductor since 2016.[2] San Diego Gas & Electric is also actively changing out small conductor.[3]

Our existing Outage Management System (OMS) does not have the detail available to allow us to see what type of conductor failed, only that it has failed and resulted in an outage. It does not track the number of wildfires actually started by downed conductor, as our current OMS tracks data is based upon cause, not impact, with the goal of repairing or replacing equipment that has caused or could cause an outage. Over the past five years, we have had 183 average outages related to overhead.

Replacement costs are variable dependent on number of phases and size of wire required on a trunk and lateral line. This average cost is based on actual unit pricing from Avista's current line crew contracts which were competitively bid. Material costs are based on actual costs incurred over the last two years. This cost does not include the following:

- Overheads and taxes.
- Design and planning.
- The cost of inter-setting additional poles to accommodate larger wire installation

Per Foot Average Replacement Cost	Installation	Wire Cost	Wreck Out	Total
Large three phase trunk	$6.37	$0.76	$2.39	$9.52
Single phase lateral	$3.48	$0.38	$2.39	$6.25

[1] 2017 PG&E's Atlas Wildfire Lawsuit, https://www.norcalfirelawyers.com/lawsuits-3/redwood-valley-fire/
[2] Southern California Edison, "2023 – 2025 Wildfire Mitigation Plan," page 253, https://www.sce.com/sites/default/files/AEM/Wildfire%20Mitigation%20Plan/2023-2025/SCE%202023%20WMP%20R2-clean.pdf
[3] San Diego "Risk Assessment Mitigation Phase Risk Mitigation Plan," page 1-16, https://www.sdge.com/sites/default/files/SDGE-1_RAMP_Wildfires_Caused_by_SDG%2526E_Equipment_FINAL.pdf

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TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 341	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista notes that its "distribution grid hardening work includes…placing steel distribution poles at critical points (sharp corners, river crossings, etc.)" Please provide the frequency with which wildfires occur at critical points. What is the installation cost for steel distribution poles?

RESPONSE:

The Wildfire Resiliency Program is designed to reduce the impact of a wildfire to Avista's system and supporting reliable operations for customers. Replacing poles with steel at critical points such as river and highway crossings reduces the impact to the system if there is a wildfire in the area. These structures are more difficult to replace during an event due to impact on traffic and environment and also have the potential to lead to cascading failures.

Our current Outage Management System does not track wildfire occurrence and does not have the granularity of providing the exact location of an event. It records the service points associated with the incident, and the location of the isolating device that operated, but does not record information specific to the exact location or what type of pole was involved.

The average steel pole conversion cost is $4,601.77 based on replacement in an energized state. The cost of digging and removal of the old pole is included in the cost. This average cost is based on actual unit pricing from Avista's current line crew contracts which were competitively bid. Material costs are based on actual costs incurred over the last two years. This cost does not include the following:

- Overheads and taxes.
- Design and planning.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 342	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan
REQUEST:
Avista notes that its "distribution grid hardening work includes…replacing obsolete equipment and devices." Please provide the frequency with which obsolete equipment results in wildfire. What is the replacement cost for obsolete equipment?

RESPONSE:
The Wildfire Resiliency Program is designed to reduce the impact of a wildfire to Avista's system. Replacing obsolete equipment such as replacing wood crossarms with fiberglass units, replacing end-of-life wood poles, and changing out obsolete small copper wire with modern steel reinforced aluminum wire all increase the strength and resiliency of the distribution system, reducing the chances that a piece of equipment will fail and result in sparks or a fire. Our current Outage Management System does not track wildfire occurrence and does not have the granularity of providing the exact location of an event. It records the service points associated with the incident, and the location of the isolating device that operated, but does not record information specific to the exact location or what type of pole was involved.

Other equipment as defined as obsolete above (except replacing wood poles) and their associated costs are addressed in the following Data Requests:
PC-DR-339
PC-DR-340
PC-DR-341

The average wood pole conversion cost is shown in the table below and is based on the primary line configuration and number of phases served utilizing an average sized pole. This average is based on replacing the pole in an energized state. This average cost is based on actual unit pricing from Avista's current line crew contracts which were competitively bid. Material costs are based on actual costs incurred over the last two years. This cost does not include the following:
Overheads and taxes.
Design and planning.

Average cost replacing a single wood pole:

Pole Configuration	Single Phase Pole	Two Phase Pole	Three Phase Pole
Angle	$2,196.42	$2,568.46	$3,087.62
Dbl Dead End	$2,642.35	$3,161.50	$4,648.36
Dead End	$2,567.15	$3,013.73	$3,307.95
Dead End Buck	$2,791.43	$3,309.26	$4,943.89
Tangent	$2,270.96	$2,643.01	$3,012.42

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TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 343	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista notes that its "distribution grid hardening work includes…underground conversion." Please provide the calculated risk reduction associated with underground conversion. What is the cost of underground conversion on a per mile basis?

RESPONSE:

By undergrounding sections of conductor, we essentially eliminate the possibility of any foreign debris impacting Avista infrastructure during adverse weather events. Burying power lines in high fire-risk areas is a preventive measure to reduce wildfire ignitions. Exposed power lines can spark fires, especially during windy conditions. Undergrounding power lines prevents these ignitions and related power outages. This ultimately reduces outages, decreases risk, and increases reliability. It eliminates the risk of a powerline falling to the ground and starting a fire. PG&E claims that burying powerlines reduces the chance of a powerline starting a wildfire by 99%.[1] Utilities across the nation are taking this stance, including Southern California Edison, San Diego Gas & Electric, and even Florida Power and Light on the East Coast, which has buried 45% of its distribution system and states that 90% of their new distribution lines will be installed underground.[2]

Based on recent fire events in the Western United states over the past two years including two major fires in Avista's service territory, Avista is working on a plan to transition to execute more overhead to underground conversions. Avista is in the process of evaluating the costs of undergrounding as part of our grid hardening program and evaluating its value to customers and communities. Avista will be working towards a robust undergrounding program over the coming years as part of our Enhanced Grid Hardening efforts, focused in high fire risk areas. We plan to begin this work in 2026, after which we will have more refined estimates on the costs related to undergrounding distribution conductor. Cost per mile will be variable from area to area based on customer density, terrain, private real-estate, public right of way, and digging conditions.

[1] "PG&E plan to bury power lines underground met with opposition due to high rates," October 17, 2023, PG&E plan to bury power lines underground met with opposition due to high rates | Underground Construction (undergroundinfrastructure.com)
[2] Florida Power & Light website: https://www.fpl.com/reliability/underground-conversions.html

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUEST NO.:	PC – 344	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Please identify all "reliability risks" and provide the risk calculation associated with each one causing a wildfire.

RESPONSE:

Avista's Wildfire Resiliency Plan has four primary areas of focus: Grid Hardening, Enhanced Vegetation Management, Situational Awareness, and Emergency Operations and Response. Each of these elements contains programs and strategies designed to address safety for human beings and the infrastructure that serves them, and each of these areas represent an important aspect of wildfire resiliency and reducing wildfire risk. These elements are also part of the wildfire plans of our contemporaries, as they are considered best practice in the utility industry. While all add risk reduction value, some have a greater impact on reducing risk than others, such as the direct risk reduction offered by hardening our system, replacing aged or outdated equipment, adding devices to monitor and control equipment, and managing risk trees, compared to the more indirect reduction offered by cross-training, partnerships, or customer outreach. Our expenditures are structured and prioritized accordingly.

Grid Hardening is the single largest capital investment of the Plan as it is equipment intensive. Our grid hardening work is focused in the highest fire risk areas, where fuels combine with housing/population to increase the risk level of fires. This work is focused on both the distribution and transmission systems with measures designed to reduce spark ignition events and protect our infrastructure from the impacts of wildfire.

On the distribution system, we are working on replacing wood crossarms with fiberglass, replacing small and outdated (such as small copper) conductor, installing wildlife guards on line cutouts, installing lightning arrestors, replacing wood distribution poles with steel at strategic points (sharp corners, river/railroad/highway crossings, etc.), replacing obsolete equipment and devices, replacing old poles based on condition, eliminating uninsulated open wire secondary conductors, installing wedge connected stirrups to provide protection and strength at hot tap connection points, and undergrounding conductor when cost-justified. This work not only reduces the chance of our equipment starting a fire, but also makes the system more resilient in general.

Transmission grid hardening encompasses a combination of capital and O&M programs. The steel pole replacement program is focused on making the transmission system resilient to wildfire by replacing wood poles in high canopy, high fire threat areas with steel poles. This is the capital portion of this program. On the O&M side, we are wrapping wood poles in low vegetation (grassland) areas with fire resistant mesh wrap and enhancing our transmission-related inspections to include elements specific to vegetation issues

and wildfire risk. All of this work reduces the risk that our transmission system will experience a failure or other issue that could result in a wildfire and helps make the transmission system more resilient to wildfire or other potential damage.

Enhanced Vegetation Management is primarily an O&M expenditure and is the largest such expenditure in our Plan. The strategy of mitigating risk trees across the system is an industry best practice. Vegetation can be a primary cause of wildfires, which is the primary driver for utilities to focus wildfire mitigation work in Wildland Urban Interface (WUI) areas. At Avista, our wildfire-related vegetation work enhanced our existing vegetation management practices to focus more specifically in elevated fire threat areas. Avista's Wildfire Enhanced Vegetation Management goal is to perform risk tree inspections across 100% of the transmission and distribution systems every year. This program aims to identify every dead, dying, diseased, or defective tree within strike distance of a powerline and remove that tree as quickly as possible. The Vegetation Team has the goal of removing risk trees within six months of identification if at all practicable.

The Wildfire Plan also added new technologies to our vegetation work including LiDAR inspections for the transmission system and satellite digital data collection for the distribution system, which are primarily O&M expenditures. We believe that the detailed, over-time analysis provided by these tools will change the way our Vegetation Management programs are managed. Because these images are taken on a regular basis, they show us where vegetation risk exceeds both reliability and fire mitigation thresholds and give us valuable information regarding the location of problem (or potential problem) vegetation issues over time. The analysis provided allows directing planners and line clearing crews to specific locations on the system to perform maintenance and mitigate risk trees rather than the traditional method of working on an entire circuit or polygon, giving us the ability to send crews to the areas of greatest need with accuracy. We believe that this streamlines our vegetation work and maximizes the value of the budget provided.

Our Situational Awareness strategies currently contain the tools and resources we use to identify risk. Automation equipment, discussed below, was recently moved into the Operations and Response category to better fit their intent and purpose. Situational Awareness tools include our Fire Weather Dashboard and WUI map which have limited capital budget assignment as most of this work is done by existing employees within their regular duties. However, the ability to identify both static risk (via the WUI map) and dynamic risk (via the Dashboard) are invaluable in allowing the Company to both recognize and react to increasing fire risk.

Operations and Response is capital intensive because it now includes hardware, software, and communications enhancements for both midline reclosers and substation breaker automation equipment. These breaker/reclosers are key protection devices out on the powerlines and within substations that can be monitored and operated remotely to quickly respond to fire weather. Automation equipment provides "eyes" on some of our most critical infrastructure in high fire threat areas. Without this equipment, many circuit breakers do not support monitoring or remote control, which means they cannot be remotely monitored or operated, requiring manual intervention to make changes to settings or to identify an issue. This may take several hours depending on location and crew availability. In fire weather conditions, this delay is unacceptable. Automation equipment allows operators to remotely reconfigure protection settings and implement Fire Safety modes. This represents the state of the art with respect to electric distribution operations in mitigating the risk of fire combustion. In fact, the California utilities, leaders in wildfire mitigation, are actually behind Avista in adopting this strategy and have only begun to utilize it extensively in the past couple years. Avista was a pioneer in the use of enhanced protection settings and has continued to make enhancements to Fire Safety Mode to increase its effectiveness and mitigate risk. California and Oregon utilities are beginning to rely more heavily on enhanced protection settings to minimize the use of PSPS, resulting in the use of PSPS in California dramatically declining in the last few years. In 2023 SCE installed 15,700 current-limiting fuses and deployed about 100 remote-controlled automatic reclosers to

respond more quickly to faults. They call this "enhanced powerline safety settings (EPSS)."[1] PG&E believes that this strategy has a direct impact on fire reduction, stating that in 2022 that they saw a 68% reduction in ignitions on their EPSS powerlines.[2] BPA also has a non-auto-reclosing strategy for use in high risk areas.

Each of our primary Wildfire Resiliency Plan elements, as described above, are designed to reduce the chance of our facilities starting a wildfire and/or to maintain customer reliability through protecting the infrastructure that serves our customers. These programs are based upon our informed judgment, best practices utilized by our peers, and our expertise in understanding the risks specific to our service territory rather than specific risk calculations.

[1] For more information on EPSS: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/fact-sheets/epss-fact-sheet.pdf and https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=52661&shareable=true and Microsoft Word - Redline Draft New and Amended Utility Regulations Policy Paper - 1.22.24 - SS (ca.gov)
[2] Enhanced Powerline Safety Settings (pge.com)

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 345	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista notes that "the current percentage of undergrounding grid hardening work is less than 1%" and that it is "in the process of further evaluating the costs…and…its value to customers and communities." What is the cost of undergrounding, on a per mile basis? How undergrounding effectiveness calculated?

RESPONSE:

By undergrounding sections of conductor, we essentially eliminate the possibility of any foreign debris impacting Avista infrastructure during adverse weather events. Burying power lines in high fire-risk areas is a preventive measure to reduce wildfire ignitions. Exposed power lines can spark fires, especially during windy conditions. Undergrounding power lines prevents these ignitions and related power outages, thus it is a highly effective strategy in reducing fire risk. This work ultimately reduces outages, decreases risk, and increases reliability. It eliminates the risk of a powerline falling to the ground and starting a fire. PG&E claims that burying powerlines reduces the chance of a powerline starting a wildfire by 99%.[1] Utilities across the nation are taking this stance, including Southern California Edison, San Diego Gas & Electric, and even Florida Power and Light on the East Coast, which has buried 45% of its distribution system and states that 90% of their new distribution lines will be installed underground.[2]

Based on recent fire events in the Western United states over the past two years including two major fires in Avista's service territory, Avista is working on a plan to transition to execute more overhead to underground conversions. Avista is in the process of evaluating the costs of undergrounding as part of our grid hardening program and evaluating its value to customers and communities. Avista will be working towards a robust undergrounding program over the coming years as part of our Enhanced Grid Hardening efforts, focused in high fire risk areas. We plan to begin this work in 2026, after which we will have more refined estimates on the costs related to undergrounding distribution conductor. Cost per mile will be variable from area to area based on customer density, terrain, private real-estate, public right of way, and digging conditions.

[1] "PG&E plan to bury power lines underground met with opposition due to high rates," October 17, 2023, PG&E plan to bury power lines underground met with opposition due to high rates | Underground Construction (undergroundinfrastructure.com)
[2] Florida Power & Light website: https://www.fpl.com/reliability/underground-conversions.html

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

JURISDICTION:	WASHINGTON	DATE PREPARED:	06/18/2024
CASE NO.:	UE-240006 & UG-240007	WITNESS:	David Howell
REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 346	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista claims that "undergrounding select, high risk areas is the best way to…reduce wildfire risk from power lines." What is the source of data used to calculate this risk reduction? Please provide the input data in Excel format.

RESPONSE:

Undergrounding powerlines is not merely a claim by Avista, but is a strategy used across the U.S. as means of reducing fire risk. By undergrounding sections of conductor, utilities essentially eliminate the possibility of any foreign debris impacting their infrastructure during adverse weather events. Exposed power lines can spark fires, especially during windy conditions. Undergrounding power lines prevents these ignitions and related power outages, thus it is a highly effective strategy in reducing fire risk. This work ultimately reduces outages, decreases risk, and increases reliability. It eliminates the risk of a powerline falling to the ground and starting a fire. PG&E claims that burying powerlines reduces the chance of a powerline starting a wildfire by 99%.[1] Utilities across the nation are taking this stance, including Southern California Edison, San Diego Gas & Electric, and even Florida Power and Light on the East Coast, which has buried 45% of its distribution system and states that 90% of their new distribution lines will be installed underground.[2]

Based on recent fire events in the Western United states over the past two years including two major fires in Avista's service territory, Avista is working on a plan to transition to execute more overhead to underground conversions. Avista is in the process of evaluating the costs of undergrounding as part of our grid hardening program and evaluating its value to customers and communities. Avista will be working towards a robust undergrounding program over the coming years as part of our Enhanced Grid Hardening efforts, focused in high fire risk areas. We plan to begin this work in 2026, after which we will have more refined estimates on the costs related to undergrounding distribution conductor. Cost per mile will be variable from area to area based on customer density, terrain, private real-estate, public right of way, and digging conditions. As this program is just getting started and no actual implementation has occurred, there is no data available to indicate a reduction in risk for Avista. Rather, this is an industry best practice based on informed judgement by U.S. utilities, and Avista would be remiss in protecting our customers and our infrastructure from wildfire risk if we did not explore this concept.

[1] "PG&E plan to bury power lines underground met with opposition due to high rates," October 17, 2023, PG&E plan to bury power lines underground met with opposition due to high rates | Underground Construction (undergroundinfrastructure.com)
[2] Florida Power & Light website: https://www.fpl.com/reliability/underground-conversions.html

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

JURISDICTION:	WASHINGTON	DATE PREPARED:	06/18/2024
CASE NO.:	UE-240006 & UG-240007	WITNESS:	David Howell
REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 347	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

As part of its "enhanced grid hardening program" Avista describes how "areas will be risk-ranked and prioritized for sectional undergrounding." What is the data source for these risk areas? Please provide the input data in Excel format.

RESPONSE:

Avista is currently working on a plan to increase more electric distribution overhead to underground conversions to more aggressively mitigate risk of Wildfire. Avista has identified initial areas of highest risk to life and property due to wildfire in specifically identified Wildland Urban Interface (WUI) "urban fringe" areas which span approximately three miles outward from population density. Initial highest risk areas are located around Spokane WA, Coeur d Alene, ID and the community of Kamiah, Idaho. Data associated with how this risk was identified is attached in PC-DR-347 Attachment A - Supporting Data. This data indicates the average cost to convert the specific segments shown to underground based on Avista's risk modeling strategy and associated analysis as discussed in PC-326, PC-330, PC-335, PC-337, PC-338, and PC-344. However, this program is still in the feasibility stage. Data is currently being collected regarding how it will be implemented. We are in the process of identifying the best approach and solution to defining and quantifying risk for use in making operational decisions related to the new Enhanced Grid Hardening program. More information should be available by the time we begin in 2026. A primary program goal is risk-ranking and prioritizing areas of our system to focus efforts on areas at highest risk, thus this will be an input into any decisions made regarding this new program.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

JURISDICTION:	WASHINGTON	DATE PREPARED:	06/18/2024
CASE NO.:	UE-240006 & UG-240007	WITNESS:	David Howell
REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 348	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista notes that "overhead distribution lines have the narrowest rights-of-way." Please describe Avista's efforts, if any, to widen rights-of-way.

RESPONSE:

At this time, Avista has no strategic plans in place to widen existing distribution rights of way. As most of our electric distribution system resides in public right-of-way, we address any need to adjust electric distribution easements (or rights-of-way) on a case by case basis.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

JURISDICTION:	WASHINGTON	DATE PREPARED:	06/18/2024
CASE NO.:	UE-240006 & UG-240007	WITNESS:	David Howell
REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 350	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Please provide the data that show the effectiveness of "updating substations located in high fire threat areas…to allow them to be monitored and controlled remotely."

RESPONSE:

Substation automation is an industry standard for reducing wildfire risk, as it allows continuously monitoring circuits for faults or potential arcing events that can lead to fire. These devices allow operators to shut down or reroute power before an arc can damage a circuit or create a spark. Texas A&M University's Department of Electrical and Computer Engineering performed a study citing the effectiveness of substation-based sensing equipment in identifying arcing or "hot spots" as a means of preventing failures and/or isolating faulted equipment that can lead to ignitions.[1] The utilities in California, leaders in wildfire mitigation due to their years of experience dealing with it, are adopting this technology as a best practice, including PG&E.[2] Puget Sound Energy is also investing in substation automation as a wildfire risk reduction methodology.[3]

As part of Avista's Wildfire Resiliency initiative, critical distribution and substation locations in high fire threat areas are receiving system upgrades in the form of automation devices. These automation devices are upgrades to modern substation and midline breaker reclosers that have integrated communications, remote operational functionality, and advanced protection engineering settings. The enhanced functionality of these new devices will aid in mitigating wildfire ignition and reducing fault energy at locations that have been identified with high wildfire risk-impact levels. The integrated communications to the devices will establish two-way communication for sending data and receiving remote commands from distribution system operators. The remote-control commands can be in the form of remote switching, remote hot-line-hold application, or remote enabling of installed protection settings. This ability will send critical system data from the device back to Avista operators and engineers to better understand the system performance and determine necessary corrections to optimize the grid.

[1] Detection of Distribution Circuit Wildfire Ignition Mechanisms Using Substation-only Sensors and Data Analytics (naspi.org)
[2] PG&E "2022 Wildfire Mitigation Plan: Grid Design & System Hardening," https://www.bing.com/ck/a?!&&p=3c2b690be042dd52JmltdHM9MTcxODA2NDAwMCZpZ3VpZD0xZTIxZTc4Ni00NmNjLTZiNDUtMjEyZi1mMzFkNDc3OTZhNjQmaW5zaWQ9NTIwNw&ptn=3&ver=2&hsh=3&fclid=1e21e786-46cc-6b45-212f-f31d47796a64&psq=2022+Wildfire+Mitigation+Plan+Grid+Design+%26+System+Hardening&u=a1aHR0cHM6Ly9lZmlsaW5nLmVuZXJneXNhZmV0eS5jYS5nb3YvZUZpbGluZy9HZXRmaWxlLmFzcHg_ZmlsZWlkPTUyMTc2JnNoYXJlYWJsZT10cnVl&ntb=1
[3] Puget Sound Energy Wildfire Mitigation and Response Plan 2022, https://www.pse.com/-/media/PDFs/Wildfire-Preparedness/210254-PSE-Attach-A-Wildfire-Plan-4-15-22.ashx

Included with the enhanced remote operability is deploying advanced protection engineering settings. Avista has operated the dry summer months with seasonally adjusted protection settings since ~2000. These seasonal settings are more sensitive from a protection engineering standpoint, which promotes safety through faster and stricter tripping to minimize the fault energy that can occur during a faulted scenario. Reducing the energy cause during electrical faults promotes reducing the chance of fire ignition. Previously, these settings were manually enabled in early summer and then manually disabled in Fall by field personnel. This process was time sensitive and relatively slow to enact across a large service territory, however the approach was successful in helping to reduce fire ignition through fault energy reduction. Avista recently expanded upon this approach by creating an updated protection strategy for wildfire mitigation. This enhanced philosophy utilizes integrated communication and group settings within the protective relays on the breaker reclosers to create a multifaceted approach that offers more tailored sensitivity to our protection strategy that align and increase with wildfire risks from late Spring, through Summer, and into Fall. Changes between the different levels of protection group settings can now be performed remotely and adjusted more frequently to balance reliability and wildfire mitigation. These refined settings allow Avista to further reduce the fault energy during more severe weather situations where wildfires can be ignited. This can also include remote application of public safety power shutoffs.

To date, Avista has enabled 75 substation breaker reclosers and 94 midline breaker reclosers with these updated protection settings. These numbers will increase annually as Avista continues to install modern substation and midline breaker reclosers with enhanced protection settings at identified high fire risk locations.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

JURISDICTION:	WASHINGTON	DATE PREPARED:	06/18/2024
CASE NO.:	UE-240006 & UG-240007	WITNESS:	David Howell
REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 351	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Please provide examples of all categories of "dispatcher comments" used to "ascertain fire-related events."

RESPONSE:

Dispatcher comments are subjective and hand entered and do not have categories. Those below were chosen at random.

#10 Reynolds car hit pole FR # 50233229 - need to replace pole - had to open all 3 cutouts @ Francis & Market at 03:45 one phase burned down per Sanchez

*** Crew Status: OnSite *** Primary burned down, undetermined cause, all repairs have been made and customers restored...GM

*** Crew Status: Dispatched ***499 trimming trees, was burning and was a arcing and flashing call...MM

*** Crew Status: OnSite ***primary burned off at hot tap at pole#056867..forced outage on c phase to isolate from backfeed need crew to repair**sdm

*** Crew Status: OnSite *** #171 Schillereff. repaired burned up service...mjg

*** Crew Status: OnSite ***B/O Jumper caused wire to burn down...MM

** Crew Status: OnSite *** 404, 431 & 437 enroute to make repairs at burned off primary jumper

*** Crew Status: OnSite *** REPLACED BURNED OFF HOT TAP..SDM

** Crew Status: OnSite *** reg bank on fire varmint got across regulator...mr butnrd up reg bank

*** Crew Status: OnSite *** 252/Eldred..burnded up connectors repaired...hms

** Crew Status: OnSite *** Child Incident = 1314541 Child Incident Location = 898 N WALNUT ST Child Incident Remark = Child Incident = 1314542 Child Incident Location = 856 N WALNUT ST Child Incident Remark =263 Rainer. turkey caused secondary to burn down...mjg

*** Crew Status: OnSite *** 1598 Pickens, Jacobson Secondary service burned down to customer pole. new service installed, all customers back on

*** Crew Status: OnSite *** phase burnt off at hottap need crew

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RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 353	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Avista claims that "tracking a reduction in the number of overhead equipment outages and pole fires should indicate the value of grid hardening investments." How often do equipment outages result in wildfires? Please provide the number of fires resulting from equipment outages, by risk area, for the past 15 years. How often do pole fires result in wildfires? Please provide the number of wildfires resulting from pole fires, by risk area, for the past 15 years.

RESPONSE:

Our current Outage Management System does not track the results of outages such as wildfires. It is designed to track cause, not impact, with the goal of repairing or replacing equipment that has caused or could cause an outage. We can report the number of spark events related to equipment outages based upon information extracted from dispatcher comments. Below is a table indicating the number of overhead equipment failures since 2009 in which dispatcher comments (such as the examples listed in PC 351) indicated that there was the potential for a spark. Also shown are all pole fires. We do not extract dispatcher comments for pole fires, as it is assumed that each one has the potential for causing a more widespread fire event.

Year	Overhead Equipment	Pole Fires
2009	58	95
2010	57	85
2011	63	89
2012	38	93
2013	39	125
2014	48	107
2015	42	205
2016	53	72
2017	63	92
2018	78	79
2019	57	68
2020	58	66
2021	53	154
2022	57	51
2023	42	67

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	Public Counsel	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 354	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Please provide the number of wildfires attributable to Avista's facilities from the past 15 years.

RESPONSE:

Avista has not historically tracked fire activity associated with its electrical infrastructure. There are a variety of circumstantial factors that can make the accurate tracking of fire activity "attributable" to Avista's infrastructure difficult. For example, a fire may originate with Avista's infrastructure due to third party activity, whether human or animal interference; or alternatively, it may be the result of other forces, such as lightning, resulting in secondary damage to that infrastructure. In some cases, the cause of a fire may not be conclusively determined. Consequently, attempting to characterize a wildfire as "attributable" to Avista's facilities presents an inherent risk of inaccuracy. To the extent that Avista's infrastructure has been involved in a wildfire that resulted in material litigation to the Company, that information is fully disclosed in Avista's annual report on Form 10K and quarterly reports on Form 10Q, which are on file with the SEC and available at www.avistacorp.com.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

JURISDICTION:	WASHINGTON	DATE PREPARED:	06/17/2024
CASE NO.:	UE-240006 & UG-240007	WITNESS:	David Howell
REQUESTER:	UTC Staff	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 355	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

Of the fire causes shown on the pie graph, how many are attributable to utilities?

RESPONSE:

The data for this pie chart comes directly from the Washington Dept. of Natural Resources Wildfire Intel Dashboard. The data shown is from 2023. That data indicated 34 events out of 1,166 total noted events were related to "power generation" which is 3%. Their data, sorted by largest number of events to fewest, is shown below:

Cause	# of Fires	%
Undetermined	356	30.5%
Debris Burning	285	24.4%
Natural	111	9.5%
Misc.	99	8.5%
Celebration	92	7.9%
Equip/Vehicle	86	7.4%
Fireworks	54	4.6%
Power Gen	34	2.9%
Arson	15	1.3%
Firearms	14	1.2%
Smoking	12	1.0%
Railroad	8	0.7%

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

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REQUESTER:	UTC Staff	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 356	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

In 2022, Avista cites that there were 745 overhead equipment failures. How do these equipment failures translate to fire events? Please provide the field notes used to describe these failures.

RESPONSE:

Overhead equipment failures can result in fires by creating arcing and sparks that can reach the ground or when failed equipment such as conductor falls to the ground and ignites ground materials. Attached is the list of field notes/dispatcher comments related to the 2022 overhead equipment outages. Please see PC-DR-356 Attachment A - Overhead Equipment Outage Notes.

AVISTA CORP.
RESPONSE TO REQUEST FOR INFORMATION

JURISDICTION:	WASHINGTON	DATE PREPARED:	06/06/2024
CASE NO.:	UE-240006 & UG-240007	WITNESS:	David Howell
REQUESTER:	UTC Staff	RESPONDER:	Matt Ugaldea
TYPE:	Data Request	DEPT:	Electric Operations
REQUEST NO.:	PC – 357	TELEPHONE:	(509) 495-8719
		EMAIL:	David.Howell@avistacorp.com

SUBJECT: Wildfire Resiliency Plan

REQUEST:

In 2022, Avista cites that there were 107 spark events. How are these events measured? How many of these events resulted in wildfires?

RESPONSE:

Avista's Outage Management System (OMS) is used to track electric outages including causation information such as: tree fall-ins, car-hit-pole, wind, animal, underground cable, overhead equipment, pole fires, etc. Fire is listed as an outage category, but generally relates to structure fires and is not typically related to Avista equipment. The OMS was designed to record actual events based upon cause, not impact, with the goal of repairing or replacing equipment that has or could lead to an outage. Currently we can use the OMS dataset to capture probable spark-ignition events by searching the text strings of dispatcher comments. Issues that could have potentially caused a fire such as conductor burned down, burned up fuse or connector, etc. are noted and counted as "spark events." Though most of these did not result in a fire (and again, we may or may not know that such an event caused a fire unless the dispatcher happens to note that) but it is important to track even potential for spark events, as our Wildfire Resiliency efforts are aimed directly toward reducing the number of these events and that potential. The current OMS is not designed to capture wildfire events. The OMS will be "updated" with our adoption of the new Advanced Distribution Management System (ADMS) with a cutover anticipated to take place sometime in 2025. This new system is planned to track outages and fire events.