Exh. DRH-5T

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-220053

DOCKET NO. UG-220054

DOCKET NO. UE-210854

(consolidated)

REBUTTAL TESTIMONY OF

DAVID R. HOWELL

REPRESENTING AVISTA CORPORATION

I. INTRODUCTION

Q. Please state your name, business address and present position with Avista.

A. My name is David R. Howell, and I am employed as the Director of Electric Operations and Asset Maintenance for Avista Corporation (Avista or Company). My business address is 1411 East Mission Avenue, Spokane, Washington.

Q. Have you previously provided testimony in this consolidated case?

A. Yes. My direct testimony and exhibits[1] in this proceeding discuss the status of the Company's Wildfire Resiliency Plan ("Wildfire Plan" or "Plan"), reiterate its goals and objectives, and summarize the technical and operational aspects of the Plan. As discussed in Avista's last general rate case, Avista's Wildfire Plan reflects the Company's 130-year operating history combined with recent efforts to quantify and respond to the financial, safety-related, and service reliability risks associated with wildfires. While I discussed this plan in detail within my testimony and exhibits, Company witness Ms. Andrews incorporated O&M expenses associated with the Company's Wildfire Plan and reflected in the Wildfire balancing account, as well as any capital additions that transfer to plant prior to or during the Two-Year Rate Plan as proposed by the Company.

Q. Have you reviewed the testimony of Public Counsel witnesses addressing the Company's Wildfire Plan and related costs included in the Company's case?

A. Yes. I have reviewed the testimonies of Public Counsel witnesses in this area and address their issues in my rebuttal testimony.

Q. Please summarize the scope of your rebuttal testimony.

A. The purpose of my testimony is to respond to the testimony of Public Counsel

[1] See Exh. DRH-1T through Exh. DRH-4.

Witness Tam who proposes additional metrics, provides suggestions to our current Wildfire Plan, and questions our wildfire related expenditures. In addition, I also respond to the testimony of Public Counsel Witness Coppola who proposes a reduction to the Wildfire Resiliency capital investment in 2023 and 2024 proposed by the Company.

My testimony will demonstrate that the metrics agreed to in the Settlement are reasonable and appropriate to Avista, its service territory, and our specific Wildfire Resiliency Plan and will help us adapt and enhance our wildfire strategies to ensure that we are meeting both strategic and tactical objectives.

In addressing the issues raised related to our expenditures, I note that Avista's wildfire capital program began in late 2020 and is expected to complete in 2029. In order to upgrade facilities in high fire threat areas and to protect critical infrastructure from the impact of wildfires, Avista is ramping up design, materials, and labor resources in the 2021-2023 timeframe with more levelized spending in the 2024-2029 period. Work is planned for distribution lines and equipment, transmission lines and structures, and in substations. We plan to upgrade nearly 3,000 of 7,650 miles of distribution lines, will convert approximately 1,100 wood transmission structures to tubular steel, and automate nearly 140 substation and distribution line circuit breakers. These upgrades are part of an overall strategy to protect lives and property, increase the resiliency of the electric delivery system, and provide safeguards for equipment and personnel.

Company witness Ms. Andrews provides additional Company rebuttal to Witness Coppola's testimony proposing a reduction to the Wildfire Resiliency capital investment in 2023 and 2024.

A table of contents for my testimony is as follows:

Q. Are you sponsoring any exhibits that accompany your testimony?

A. No, I am not.

II. GENERAL DISCUSSION

Q. Witness Tam, in his response testimony (Exh. AT-1T) provided several recommendations for improving Avista's Wildfire Plan. Can you provide a general overview of your thoughts regarding these comments?

A. Yes. Witness Tam provided several helpful and constructive ideas for improving the Plan, and we will make use of several of them in upcoming Wildfire reports starting with the 2022 Wildfire Year End Report. We are taking the knowledge and experience gained, as well as changing conditions, to continually improve the Plan. We will address more of his specific recommendations further in this testimony.

Q. Can you summarize how you will be incorporating Witness Tam's ideas into your Plan going forward?

A. Yes. We will be adding his recommendation for a glossary of terms into our annual Wildfire Year End Reports, starting with the 2022 report which will be released early in 2023. We will also make a concerted effort to use the same terminology in most Wildfire

documents. We believe this will promote better consistency and understanding, and the Company appreciates this suggestion. In addition, the Company will be more mindful of definitions used by other utilities and entities as we work with them in order to fold in those which are useful, improve our communications, and promote greater comprehension. His ideas around tables summarizing the benefits of programs are also beneficial and will be incorporated in our 2022 Wildfire Year End Report. Avista's Wildfire Year End results are updated annually. The Wildlife Plan itself will likely be updated every two years or as required due to material changes.

Q. Does any of this suggest that the settlement should not be approved as filed?

A. Not at all, it simply acknowledges that some of Witness Tam's suggestions have value and will be incorporated as we move forward, starting with the 2022 Wildfire Year End Report to be released in 2023.

III. PUBLIC COUNSEL DISCUSSION OF CAPITAL INVESTMENT

Q. Throughout their testimonies, both Witnesses Coppola[2] and Tam[3] argue the Wildfire Plan does not specifically identity the equipment, structures, or facilities the Company will replace during the 2022–2024 period, and that without such underlying information, it is not possible to assess the reasonableness or the validity of the Company's forecasted capital additions. Do you agree?

A. No, I do not. In order to upgrade facilities in high fire threat areas and to

[2] Exh. SC-1CT, pp. 80: 9 – pp. 81: 4.
[3] Exh. AT-1T, pp. 5: 5-7

protect critical infrastructure from the impact of wildfires, Avista is ramping up design, materials, and labor resources in the 2021-2023 timeframe, as the Plan is beginning to be implemented, with more levelized spending planned for the 2024-2029 period. Upgrades are planned for distribution lines, transmission lines, and substations. This work includes nearly 3,000 of 7,650 miles of distribution lines, converting approximately 1,100 wood transmission structures to tubular steel, and automating nearly 140 substation and distribution line circuit breakers. These upgrades are part of an overall strategy to protect lives and property, increase the resiliency of the electric delivery system, and provide safeguards for equipment and personnel. Over the rate effective period (2023-2024), in order to meet the Wildfire Plan objectives, we need to accelerate our capital investment in areas such as distribution grid-hardening, transmission steel conversion, substation dry land mode automation, etc., annually over the first years of the 10-year Plan as the Plan gets underway.

The Company has provided in its testimony, exhibits, workpapers and in response to discovery requests, annual information of expected costs – i.e., miles of distribution lines, number of structures, number of substations, etc., as noted above, over the 10-year plan, annually. However, the specific detailed information of materials and locations of each mile, distribution line, crossarm, etc., to be replaced, upgraded, etc., will be, by necessity, determined as we progress through each year, and will be based on emerging influences for each time period, such as the high fire threat districts per our Wildland Urban Interface (WUI) map and the updated WUI map, annual review of our system and its specific characteristics, and where the work is to occur, related work, annual lessons learned, and other factors. Within the overall confines of these efforts for 2023-2024, adaptability and flexibility are key considerations.

Q. Witness Coppola recommends the Commission increase the Company's 2022 spending level by inflation and remove from this case any excess amount forecasted by the Company above the inflation adjusted amount.[4] Is the use of inflation, as proposed by Witness Coppola reasonable?

A. No, it is not. Witness Coppola proposes to use the $24.5 million system spending level in 2022, adjusted by inflation to $25.1 million in 2023, and $25.7 million in 2024.[5] This is compared to the level included by the Company in 2023 and 2024, of $27 million and $29 million, respectively, a reduction of $1.9 million in 2023 and $3.3 million in 2024 (or $1.2 million and $2.1 million, respectively, for the Washington jurisdiction). As discussed above, to meet the Wildfire Plan objectives, the Company must accelerate its wildfire investment over the first years of the Plan. The Company has only begun to ramp up its investment, starting in 2021 and 2022, with increases necessary at the levels proposed in 2023 and 2024. Reducing the Company's Wildfire investment to reflect levels proposed by Witness Coppola would undermine the objectives of our Wildfire Plan.

Q. Witness Coppola recommends using the historical average amount of spending by the Company to determine the level of spending allowed.[6] Is this reasonable?

A. No. The Company's Wildfire Plan capital investment planned in 2023 and 2024 are the result of accelerating its prior existing capital investment in order to meet the 10-year Wildfire Plan requirements. For instance, Avista's existing Grid Modernization program was re-characterized as Grid Hardening as a result of the Wildfire Resiliency Plan

[4] Exh. SC-1CT, pp. 83: 10-15.
[5] *Id.*
[6] Exh. SC-1CT, pp. 85: 15-20 – pp. 86: 1-14.

in order to focus infrastructure upgrades in high fire threat districts and to complete upgrades by the end of 2029, the projected end of the first Wildfire Resiliency Plan. Specifically, as noted above, in order to upgrade facilities in high fire threat areas and to protect critical infrastructure from the impact of wildfires, Avista is ramping up design, materials, and labor resources in the 2021-2023 timeframe as the Plan gets started, with more levelized spending in the 2024-2029 period as the Plan programs are completely up and running.

For example, in order to align design resources, material supply, and labor, in 2020 Avista completed 61 miles of distribution grid hardening, increasing to 146 miles in 2021, and we are expecting to complete 210 miles in 2022. This number jumps to 327 miles in 2023 and remains at that level through 2029. Completing this body of work will require several years, hundreds if not thousands of miles of reconductor work along with thousands of wood crossarm upgrades to fiberglass, the installation of animal guards, select conversion of overhead lines to underground cable, and other work as defined in the Grid Hardening scope[7] and as required by each project.

Witness Copolla's use of an average of historical investment (2019-2020) with his CPI escalator, is untenable and would understate and underfund our Wildfire capital needs in 2023 and 2024, not allowing the Company to meet its Wildfire Plan objectives.

Q. Are there protections in place for customers if the Company's level of capital investment for Wildfire Resiliency approved by the Commission are not met by the Company?

A. Yes. As explained further by Ms. Andrews, the annual Provisional Capital

[7] For more information, please see Avista's Wildfire Resiliency Plan, Exh. DRH-2.

Reporting requirements agreed to in the Full Multiparty Settlement Stipulation[8] will provide the opportunity for all parties in this proceeding and the Commission to review all capital investment levels approved by the Commission in this proceeding. To the extent customer rates approved by the Commission are overstated due to the capital investment approved by the Commission in Rate Year 1 (2023) and Rate Year 2 (2024), compared to the actual level of capital investment for those periods, the Company would be required to refund to customers those over collections.

Q. Witnesses Tam[9] and Coppola[10] question the variable cost for steel transmission replacement. Can you please explain these differences?

A. Yes. The average steel transmission pole costs about $25,000. However, that only includes the cost of the actual pole, and this will vary significantly depending upon the type of pole it is, its height, attachments, current supply and demand issues, etc. Avista has 1-pole, 2-pole, and 3-pole structures in its transmission system in addition to a large number of self-supporting structures that can cost $100,000 each or more, thus the price of steel poles can vary substantially. There are many other factors that go into the cost of a transmission pole replacement or project, including:

- Access: This can be extremely expensive depending on location. For example, in urban areas where population has built up around our rights-of-way and "land-locked" our structures, we have spent up to an additional $20,000 per structure to purchase additional rights-of-way. Rural or remote areas may have significant additional expense because they tend to involve a lot of road building.

- Location: When the line is built or repaired in very remote locations, it is significantly more expensive to get crews to the site, including the additional time it takes to bring in supplies and manpower and the additional equipment needed (for example, helicopters) to do the work. As mentioned above, this may also

[8] Exh. JT-2, paragraph 20.
[9] Exh. AT-1T, pp. 19: 15-18 – pp. 20: 1-13 – pp. 21: 1-2.
[10] Exh. SC-1CT, pp. 81: 11-20 – pp. 82: 1-8.

require road building.

- Restoration Costs: This can include elements such as fencing, landscape, sprinkler repair, sidewalks, curbs, driveway restoration, field/crop repair or reimbursement, etc. which are necessary to return the work area to an acceptable state. The term "acceptable" and what that entails is also widely variable depending upon the impacted landowner.

- Outage Constraints: Outages are more and more difficult to schedule, and are becoming shorter, as customer reliability is a high priority for Avista and all utilities. Performing the same amount of work in a shorter time frame to reduce down time is more costly, as it makes higher demands on the crews. If the job requires "hot" work, it is more dangerous and thus more expensive as well.

- Soil Types: An area that is comprised of shallow and hard rock will be more expensive for a build. Soil conditions also impact the kind of foundations that are required, which can add cost.

- Distribution Underbuild: It is much more expensive and risky to deal with setting steel poles through energized distribution if it is present.

- Project Size: When a large number of structures in the same segment are replaced in a one linear project, the unit rate can decrease. When only one or two structures are replaced, it is more expensive per unit.

- Market Conditions: When Avista is competing in the steel pole market with other utilities, which is often the case, the market price will reflect that increased demand. Currently with the supply issues facing our industry and others, and with inflation increasing as it is, prices and the resulting costs are naturally impacted.

- Contractors: Costs go up when contract crews, upon which we depend for some of this work, are in high demand.

Unfortunately there is not a one-size-fits-all cost for transmission projects, in great part due to the factors above. Each project must be assigned a cost based upon its unique characteristics determined when the project is designed.

Q. Witness Tam states that "Avista claims to be replacing equipment using a risk-based rather than a condition-based approach. If this were the case, the utility already should have estimates of planned units for replacements readily available based

on their wildland-urban interface (WUI) wildfire risk map, but the Company has not provided that data in a transparent manner upon request."[11] Can you please explain this?

A. Designing and implementing these projects is complex and multi-faceted. Providing exact counts of infrastructure upgrades such as pounds of conductor, unit assemblies for fiberglass crossarms, the number of missing animal guards, adding bail connectors, and converting wood poles to steel or overhead conductors to underground are only available once the design phase is complete, which is performed annually. Circuits vary greatly both in complexity and their maintenance history. Material requirements vary as well between 3-phase and single-phase systems. We report these details at year-end. Many of them are specifically listed in the Settlement Agreement and are part of the 16 new reporting metrics for Wildfire.[12]

In addition, work plans are continually being modified as new tools and methodologies are developed. For example, when Avista originally began planning equipment replacement to reduce fire risk for transmission wood-to-steel replacement, the WUI map was the primary tool used to identify areas most at risk for fire. In 2022 a study was just completed on historic fires near Avista transmission structures.[13] The dataset includes fire names, locations, fire

[11] Exh.AT-1T, Section IV, p. 21: 3-7.
[12] Exh. JT-2, Attachment B, p. 43, see Items 50-66.
[13] This data was based upon a number of sources. Fire occurrence data is available from a program called Monitoring Trends in Burn Severity (MTBS): https://www.usgs.gov/centers/eros/science/monitoring-trends-burn-severity?qt-science_center_objects=0#qt-science_center_objects, managed by the Earth Resources Observation and Science Center (EROS). EROS studies land change based on millions of satellite images it collects. https://www.usgs.gov/centers/eros. Also utilized was data from the USDA Forest Service Geospatial Technology and Applications Center (GTAC). GTAC provides maps of forest service land, insect and disease areas, landscape change, and more. Combined with the EROS satellite images, it creates a comprehensive data source related to monitoring trends in fires, active fire mapping, and predictive services. https://www.fs.usda.gov/about-agency/gtac. Note that Fire data for 2019-2021 was unavailable from this source so was obtained from the National Interagency Fire Center (NIFC): https://data-nifc.opendata.arcgis.com/datasets/nifc::wfigs-wildland-fire-perimeters-full-history/about

perimeters, acreage, start date, and fire type for all the fires over 1,000 acres between 1984 and 2019. Avista selected the fire maps associated with our service territory and layered them over the transmission system. This allowed us to identify past fires near transmission lines and to better understand the recurrence of fire activity near transmission assets. This information was used to identify lines or segments of lines most likely to experience fire damage based on past actual events. The result of this work was that the transmission pole replacement plans were re-prioritized for 2023. For 2023 planned construction, Avista's transmission design group has identified 81 structures that will be replaced with steel at an estimated cost of $3,360,500, or a per structure estimate of $41,488 using this new study as a basis for their planned work. All of this is further evidence of the need to be flexible in our planning and execution.

Distribution grid hardening projects are based on a number of factors that are subject to change and updates as well. The current year projects are based upon the original WUI map, which has since been updated and improved. Thus, some feeders we completed based on the 2019 feeder model now have additional areas of elevated fire risk that must be addressed. We will return to these feeders in 2023. In addition, the new WUI map may have differing areas of Tier 3 risk defined, requiring a change in the focus of the Grid Hardening Plan in order to address these areas as a top priority. This program is also heavily dependent upon the Wood Pole Management Program plans and results. Distribution grid hardening also attempts to group adjacent circuits together in order to achieve some efficiencies, so when other programs make changes to their plans, this plan is impacted and must adjust accordingly.

Because Avista's Wildfire Plan focuses on constant improvement and refinement as we learn from this new area of focus on wildfire, work plans will continue to evolve and

change.

IV. WITNESS TAM DISCUSSION OF METRICS AND DATA

Q. Witness Tam discusses the wildfire metric originally proposed by Mr. Ehrbar for inclusion as a performance measure.[14] Can you address this?

A. Yes. While Witness Tam provides testimony on the wildfire performance measure sponsored by Mr. Ehrbar, the Settling Parties agreed to not incorporate any of the originally-filed performance measures, including the wildfire measure, in the Settlement Agreement. So, Witness Tam's testimony in this regard is moot. Rather, the Settling Parties included 92 metrics that Avista will track, including 16 related to wildfire (Exh. JT-2, Attachment B, Items 50-66).

Q. Does Public Counsel support that portion of the Settlement?

A. Yes. In addition to 14 other conditions of the Settlement that Public Counsel supports, as discussed by Mr. Ehrbar in Exh. PDE-2T, the wildfire metrics are supported by Witness Tam.

Q. Witness Tam discusses Avista's Performance Metric (PIM) around vegetation management work, stating that the metric does not compel the Company to do more for wildfire mitigation than it is already doing.[15] Witness Tam performed calculations related to Avista's vegetation work in 2021 to support this position. Are these calculations and his resulting conclusion correct?

A. No. There appears to have been miscalculations in Witness Tam's aggregation

[14] Exh. AT-1T, Section III, pp. 8: 9-13 – pp. 10: 1-2.
[15] Exh. AT-1T, Section III, pp. 9: 1-10.

of Avista-provided distribution vegetation work performed in 2021, specifically that included in Avista's response to Public Counsel Data Request No. 182 "Attachment A – 2021 Work Plan-December Master". Upon further review of the information provided, it was rather complicated in terms of filters, and probably did not lend itself to easy interpretation for someone not familiar with the spreadsheet. For example, we believe the data included in Exh. AT-3 includes information from years other than 2021 which led Witness Tam to assume we did almost 3 times the work in 2021 than was actually accomplished. In 2021, the total miles planned for routine inspections was 758.6, and for risk inspections was 1834, for a total combined inspection of 2592.6 miles in 2021. This is approximately 34% of the roughly 7,675 overhead lines miles of the distribution system.

For 2022, we are increasing risk inspections from 34% to 100% for non-urban work planning polygons, totaling 6,466 overhead line miles in 2022 (as compared to 2,592.6 in 2021). The 2022 risk and routine inspection targets are as follows:

- 4,794.1 miles of risk inspection only (non-urban polygons)
- 1,672.3 miles of risk inspection performed in conjunction with routine inspection (non-urban polygons)
- 338.6 miles of routine inspection (urban polygons)

This brings the total inspection mileage in 2022 to 6,805 miles, more than two and a half times the mileage from 2021. This is a stretch goal for the Company that we feel is extremely important in reducing vegetation-related outages and fires and is the reason we initially asked for consideration of a performance based financial incentive.

Q. Can you please elaborate further on your vegetation remediation work and associated goals?

A. Yes. Avista's Vegetation Management Department has set an internal goal

that, where feasible, remediation of identified risk trees will be completed within 6 months of identification. We are working to right-size our inspection and tree crew contract labor forces as we grow the program to meet this goal. Avista faces an extremely competitive vegetation management labor market in the West, with California exerting the strongest pull on these resources. Even so, in the last year Avista has increased its inspections and tree crew labor by 2 to 3 times. Once we complete the first annual 100% non-urban risk inspection (in 2022) and subsequent mitigation, we will be able to calibrate inspection and mitigation velocities, better allocate labor, and achieve mitigation on a more predictable schedule.

Q. Witness Tam states that Avista should track pole fires and fiberglass cross-arm replacements alongside one another.[16] Are these metrics tracked by Avista and is this data located in close proximity to one another?

A. Yes. Both of these items are presented in our Wildfire 2021 Year End Report.[17] The crossarms installed graphic is on page 3 and the pole fire graphic resides on page 4. The charts given are also provided below at Chart Nos. 1 and 2. This data is updated at the end of each year.

[16] Exh. AT-1T, Section IV, pp. 18: 5-7.
[17] Exh. DRH-3, pp 3-4.

Chart No. 1: Avista Number of Pole Fires Per Year

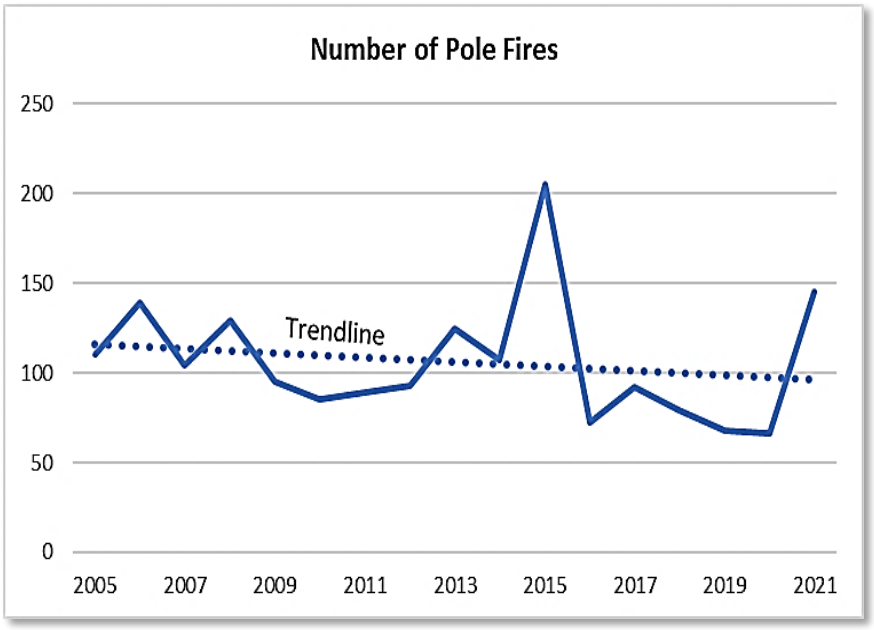
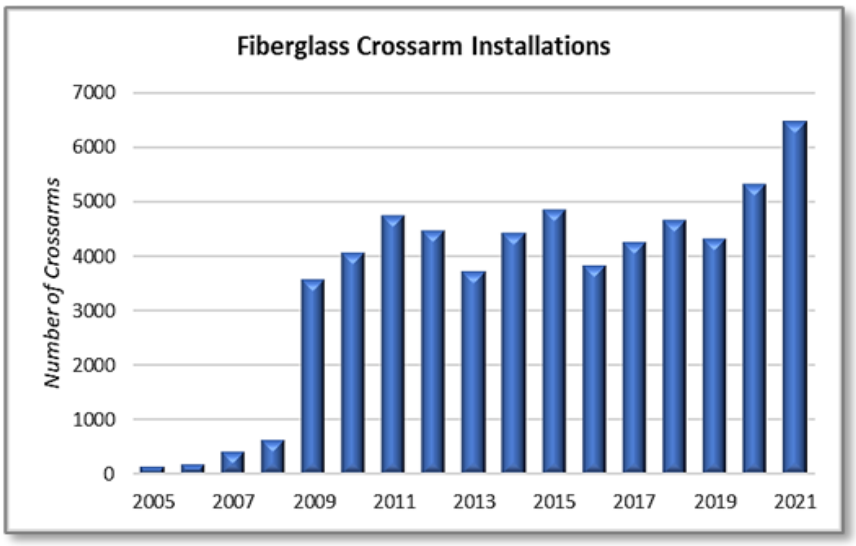


Chart No. 2: Avista Fiberglass Crossarm Installations Per Year



Q. Witness Tam mentions the need for an adjustment in costs to the proposed Outage Management System implying that this is based upon its relationship to Wildfire.[18] Can you clarify?

[18] Exh. AT-1T, Section III, pp. 10: 19.

A. It is important to note that the replacement for the current in-house designed Outage Management System (OMS) is a new system called the Advanced Distribution Management System (ADMS). It is not a wildfire-specific application. It is an enterprise-level system that will be used across the Company, just as the current OMS is used as an outage management, response, and restoration workflow tool. Wildfire is a user of this system, not the owner or manager. The ADMS-related capital and O&M requests are in a business case separate and distinct from the Wildfire business case and capital and O&M requirements.

Q. Can you explain the limitations of the existing OMS related to Wildfire's data needs?

A. Yes. The existing 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. The existing system does not have the capability of specifically capturing the data needed to determine the impacts of fire on our system or if an outage led to a fire. The existing OMS records as much information as the field personnel provide to Distribution Operations within the categories of Reason, Sub-Reason and Remarks. Thus, for the time being we must search the Dispatcher comments to gain information related to fire events.[19] Witness Tam is correct that this collection method can produce inconsistent results. The digital flow of the new ADMS will enable capturing additional information about an outage that can be used for analysis across the enterprise, including wildfire-related metrics. For example, the new system will allow for a more robust recordable system of damage locations. However, it will still take some procedural changes in the field (as well as mobile technology) to consistently capture

[19] In discussions with peer utilities, many of them collect this data in the same way. Most utility outage systems were not designed to track the impacts of outages or fire starts.

this information, another aspect of the complexity of the new ADMS as the Company prepares the Request for Proposal.

Q. Witness Tam states that "the Company does not provide information on how wildfire program managers, David James and David Howell, have influenced the OMS Request for Proposal."[20] Please explain this.

A. As discussed in our response to PC-312 and PC-315,[21] a Request for Proposal (RFP) is currently being developed for Avista's ADMS as described above. Wildfire personnel are stakeholders in this process and will participate in developing the requirements for the outage management replacement system. As the RFP is developed, the Company will incorporate best practices from the industry and gather input from stakeholders around Avista including Wildfire, as many different business units across the Company utilize this data and will be involved in its use and development.

Q. Does Avista have any options in acquiring better wildfire-related data prior to the installation of the new ADMS?

A. Yes. ADMS is not expected to fully come on-line until 2025. As mentioned, there are many stakeholders involved in the transition from the existing outage management system to the new system, and the Wildfire use case is just one of several hundred potential use cases, which adds to the length of time required to fully implement this system. The Wildfire Team needs to have better information in the near term. In response, in May of 2022, Avista's Wildfire Team developed an automated method for tracking fire activity in proximity to electric system assets, correlating that information to system activity. This new tool should

[20] Exh. AT-1T, Section V, pp. 23: 13-15.
[21] Exh. AT-28 and Exh. AT-30

provide much of the tracking information needed as it is rolled out, tested, utilized, and refined.

The tool is based upon information provided by the National Interagency Fire Center (NIFC),[22] which hosts the central repository for all wildfire data in the nation. The Wildfire Team set up a means of automatically pulling information on all wildfires from the NIFC website. Once this dataset is downloaded, it is filtered using GIS buffering tools to create a list of all incidents that occur within 400 meters of our electric system. Avista can then correlate this filtered data to our existing Outage Management System to see if our system was impacted by any wildfire activity. This information should be available in the 2022 Wildfire Year-End Report after we complete testing and proving this methodology.

Q. Witness Tam states that "The Company has no further plans outlined in its 2022 Wildfire Plan to track spark or fire ignition data. The Company has no further planned expenditures for fire ignition tracking in their 2022 Wildfire Plan."[23] Is this the case?

A. This is incorrect. No additional expenditures are listed as it is expected that spark ignition location data will be available from ADMS, which is budgeted under its own business case. In addition, the Wildfire Team is in the process of acquiring geospatial data to track fire ignition events, which is part of our routine workflow and does not entail additional expenditures. Though no additional expenditures are indicated, work to acquire this information is ongoing, as indicated by the inhouse-developed tracking tool mentioned above. Tracking fire ignition events is very much a part of the Plan. Avista has been collecting

[22] https://www.nifc.gov/
[23] Public Counsel witness Tam, Exh. AT-1T, Section V, pp. 23: 1-3.

information on spark-ignition incidents since 2020 and is now collecting information related to wildfires near transmission and distribution assets as described earlier. Tracking the number of spark-ignition events along with other metrics such as the number of tree fall-in events, the number of equipment failures, and when fires impact electric assets, are important measures to help us adapt and improve our strategies and programs.

Q. Witness Tam also recommends geographic tracking of risk events and ignitions.[24] Does Avista have this capability?

A. Yes, Avista is currently tracking wildfire ignition events through agencies such as the National Incident Information System (InciWeb),[25] the National Interagency Fire Center (NIFC),[26] and the U.S. Forest Service Fire-Weather Laboratory (WFAS).[27] Fire information is logged by professional fire agencies in a geospatial format which is accessible to the Company. Avista is monitoring fire risk through our Fire Weather Dashboard, which is a geospatial tool that calculates risk for every location in our distribution system. We can view and record that risk in a geospatial format as well.

Q. Can you provide more details about the Company's Fire Weather Dashboard?

A. Yes. During fire season Avista continuously tracks localized weather patterns via the National Weather Service to identify consistently dry conditions that promote lower fuel moisture, as well as extreme wind conditions, as an acute risk-based warning system for wildfires. Avista's Fire Weather Dashboard is our primary tool for identifying fire risk on our

[24] Exh. AT-1T, Section VI, pp. 42: 5-6.
[25] https://inciweb.nwcg.gov/
[26] https://www.nifc.gov/
[27] https://www.fs.usda.gov/science-technology/fire/fire-research

system. The Dashboard is a risk-based model developed using system performance data based on our service territory. This tool allows insights into each circuit in the distribution system, providing a risk level based on a robust spectrum of information including wind speed and direction, sustained winds, humidity level, type of vegetation, temperature, condition of equipment, mode of operation, and more. It provides a dynamic look at Avista's daily fire risk and weather conditions, identifying areas and times where problems may arise and when the risk is increasing beyond acceptable thresholds.

The Dashboard will not reduce fire risk on a standalone basis; however, the information it provides is vital to adapting operations and emergency response to the potential for wildfire. It helps operators identify fire risk potential and is an integral part of Avista's defensive strategy to limit the number of spark-ignition events that can support fire combustion. It has recently been upgraded with the ability to track current fire paths and relationships to our facilities, and to provide a historical record of fires and their impacts.

When combined with the dynamic operating capability provided by automation equipment, it guides the decision to enable various levels of operations (Dry Land Mode operations) to mitigate risk. The Dashboard also indicates the status of Dry Land Mode equipment and also indicates whether the circuit is enabled for Dry Land Mode operations. The dynamic approach offered by the Dashboard allows system operators to better understand timing and extent of the risk, providing notice for the Company to take action in order to mitigate potential spark-ignition events.

An example of the Dashboard is shown in Graphic No. 1 below. Note for each circuit, the weekly maximum fire risk ("Max") is shown, as well as the circuit identity ("Feeder"), the operating status of the circuit ("Setting"), whether the circuit is fully automated or not

("DLM"),[28] and the current state of the device ("OC").[29] Both expected sustained wind speed and projected wind gust speeds are shown in the first table, with fire risk indicated in the second table. Both tables contain the outlook for the week ahead.

Graphic No. 1: Avista's Fire Weather Dashboard[30]

WIND SPEED (MPH)

Wind Gust | Wind Sustained

Max	Area_Office	Feeder	Setting	DLM	O/C	08-11	08-12	08-13	08-14	08-15	08-16	08-17	08-18
21.9	Colville	CHW12F2	BASE	ADV		21.9	13.8	17.3	9.2	8.1	6.9	9.2	10.4
20.7	Colville	CHW12F1	OFF	NO		20.7	13.8	17.3	9.2	8.1	6.9	9.2	9.2
20.7	Colville	CHW12F4	OLD	YES		20.7	13.8	17.3	9.2	8.1	6.9	8.1	9.2
27.6	CDA	LKV342	OFF	NO		27.6	11.5	18.4	13.8	10.4	10.4	11.5	11.5
27.6	CDA	LKV343	OFF	NO		27.6	11.5	16.1	11.5	8.1	8.1	10.4	10.4
27.6	CDA	LKV341	OFF	NO		27.6	10.4	17.3	13.8	9.2	10.4	11.5	11.5
24.2	Davenport	HAR12F1	OFF	NO		15.0	19.6	24.2	15.0	13.8	12.7	13.8	16.1
24.2	Davenport	ODS12F1	OFF	NO		12.7	19.6	24.2	15.0	13.8	12.7	15.0	17.3
23.0	Davenport	HAR12F2	OFF	NO		15.0	19.6	23.0	15.0	12.7	11.5	13.8	16.1
24.2	Deer Park	COB12F2	BASE	ADV		24.2	13.8	16.1	10.4	6.9	6.9	8.1	9.2
20.7	Deer Park	DEP12F2	BASE	ADV		20.7	13.8	17.3	10.4	6.9	6.9	9.2	9.2
18.4	Deer Park	LOO12F2	OLD	YES		15.0	15.0	18.4	10.4	8.1	6.9	9.2	9.2
42.6	Grangeville	CRG1263	OFF	NO		42.6	15.0	18.4	15.0	13.8	13.8	13.8	15.0
42.6	Grangeville	CRG1260	OFF	NO		42.6	16.1	18.4	15.0	13.8	13.8	13.8	15.0

FIRE RISK

Last Updated: Thu Aug 11 2022 12:13:02

Max	Area_Office	Feeder	Setting	DLM	O/C	08-11	08-12	08-13	08-14	08-15	08-16	08-17	08-18
5.6	Colville	KET12F2	OLD	YES		2.9	2.8	5.6	4.3	4.5	4.6	4.7	4.7
5.5	Colville	GIF12F1	BASE	ADV		2.5	4.6	5.5	4.3	4.4	4.5	4.8	4.6
5.5	Colville	GIF34F1	BASE	ADV		4.2	4.7	5.5	4.6	4.6	4.6	5.1	4.8
4.6	CDA	SPL361	OLD	YES		2.8	2.1	4.6	4.3	3.7	4.2	4.4	4.5
4.5	CDA	IDR253	OLD	YES		3.6	3.7	4.5	3.8	3.6	3.9	4.1	4.0
4.5	CDA	CDA122	OFF	NO		3.5	3.7	4.5	3.8	3.6	3.8	4.0	4.0
5.3	Davenport	FOR12F1	BASE	ADV		4.2	4.6	5.3	4.6	4.4	4.5	4.9	4.8
5.3	Davenport	LTF34F1	OLD	YES		3.4	4.6	5.3	4.6	4.4	4.9	4.9	4.9
5.2	Davenport	RDN12F1	BASE	ADV		3.5	4.4	5.2	4.6	4.2	4.6	5.0	5.0
5.0	Deer Park	DEP12F1	BASE	ADV		2.0	4.3	5.0	4.2	3.9	4.0	4.4	4.5
4.7	Deer Park	COB12F1	BASE	ADV		2.8	3.7	4.7	3.9	3.8	3.8	4.3	4.3
4.7	Deer Park	LOO12F2	OLD	YES		0.7	2.3	4.7	4.1	3.7	3.7	4.3	4.1
6.2	Grangeville	GRV1274	OFF	NO		6.2	3.5	4.7	4.7	4.6	4.6	4.6	4.6
6.2	Grangeville	ORO1280	BASE	ADV		6.2	3.4	4.7	4.6	4.5	4.5	4.5	4.5

LOW	MODERATE	HIGH	ELEVATED	EXTREME
0-4.0	4.1-5.5	5.6-6.4	6.5-6.9	>7.0

Q. Witness Tam recommends the addition of several new metrics used by the California utilities.[31] Do you agree with these additions?

A. Avista has developed metrics specifically applicable to our Wildfire Plan and Washington and Idaho regulatory requirements. We recently added 16 new metrics in accordance with the Washington Commission Settlement Agreement,[32] including:

1. Number of outages by category during the Fire Season (June 1-Oct. 1) vs Non-

[28] ADV=automated, NO=nominal settings, YES=DLM enabled
[29] The indication of the device is either energized (red) or closed (green).
[30] Setting: BASE= Automated base-level mode, OLD=manual, no remote capability mode, OFF=not in the DLM program.
[31] Exh. AT-1T, Section V, pp. 26: 13 and Section VIII, pp. 28: 15
[32] Exh. JT-2, Attachment B, Metrics 50-66.

Fire Season.
2. Number of overhead equipment failures by subcategory (arrestors, capacitor, insulator, fuse, conductor, etc.) during Fire Season (June 1-Oct. 1) vs Non- Fire Season.
3. Number and percent of planned pre-season vegetation inspections and remediation performed on time.
4. Number of trees trimmed.
5. Number of hazard trees removed.
6. Number of trees replaced through the Customer Choice Right Tree Right Place ("Safe Tree") program.
7. Number of trees removed through customer requests.
8. Trees and brush removed, and trees trimmed from the Fuel Reduction Partnerships.
9. Number of reclosers installed.
10. Number of circuit breakers upgraded with Supervisory Control and Data Acquisition data (SCADA).
11. Miles of Wildland Urban Interface.
12. Number and percent of distribution grid hardening projects planned vs completed.
13. Miles of conductor undergrounded.
14. Miles of copper conductor replaced.
15. Number of small copper wire units removed.
16. Number of wildlife guards installed.
17. Number of open wire secondary districts removed.
18. Number of wedge/bail clamps at hot tap connection points installed.

In addition, we added both satellite and LiDAR data collection methodologies to provide detailed information about vegetation issues. We believe we are progressing with our data collection appropriately as we experience our first few years of the Plan, and that these metrics are reasonable and appropriate for Avista's system as well as our Plan and its related programs and goals. We are open to adding new measures, metrics, and tools as they become available if they can be acquired in a cost-effective manner and align with Avista's Wildfire Resiliency Plan.

Cost is a real issue. For example, Witness Tam recommends that Avista install fire

cameras.[33] PG&E is paying as much as $700,000 to operate wildfire cameras per year.[34] SDG&E indicates that one wildfire camera costs about $5,000 and setting it up can cost between $20,000 and $80,000.[35] The characteristics of the California utility systems vary greatly from what is faced by Avista. SDG&E serves nearly 1.5 million electric customers over 4,100 square miles (about 363 customers per square mile).[36] PG&E provides service to over 5.5 million electric customers over 70,000 square miles (about 79 customers per square mile). [37] Avista has only about 402,000 customers over it's 30,000 square miles (13 customers per square mile).[38] Again, Avista has 13 customers per square mile compared to 363 customers per square mile for SDG&E, **roughly 3.5% of the density**. The logistics of installing fire cameras over such a large service territory, much of which is rural, are quite different than a primarily urban environment such as that of the California utilities.

The Wildfire Team has consulted with several companies that provide fire detection systems (such as mountain top cameras) and discussed these systems with state and county fire officials. We may be interested in partnering with area fire authorities to develop remote sensing capabilities and share costs when these agencies reach that point.

Witness Tam also recommends that Avista install fire detection software and utilize satellite-based fire detection technology.[39] We have begun exploring working with external

[33] Exh. AT-1T, p. 31, ll. 6-9.
[34] J.D. Morris, "CA Utility Paying for Wildfire Watch Cams," Firehouse Magazine, Sept. 25, 2018, https://www.firehouse.com/tech-comm/news/21023986/ca-utility-pge-high-def-camera-network-monitor-wildfire-firefighters.
[35] Celina Tebor, "Wildfire camera networks spread across California," San Diego Union-Tribune, Oct. 24, 2019, https://www.sandiegouniontribune.com/news/environment/story/2019-10-24/wildfire-camera-networks-spread-across-california.
[36] https://www.sdge.com/more-information/our-company#:~:text=SDG%26E%20is%20a%20regulated%20public,area%20spans%204%2C100%20square%20miles.
[37] https://www.pge.com/en_US/about-pge/company-information/profile/profile.page
[38] https://investor.avistacorp.com/static-files/c55bdc40-c435-4c2b-b003-783acdc95d2b
[39] Exh. AT-1T, p. 31, ll. 6-9.

state and local agencies related to these types of technologies as well, as this kind of in-depth fire identification and associated response falls under their jurisdiction. Witness Tam also mentions the use of drones with thermal imaging capabilities.[40] Avista is currently beginning to use drones to inspect powerlines, so adding additional capabilities may be a future consideration if it is cost justified.[41]

He is correct that all these tools are useful, but they can add significant cost, which must be considered so Avista customers will not end up facing the high energy and wildfire costs faced by the customers in California.[42] For comparison of wildfire program costs, PG&E customers face three-year average costs per customer of $981.40, SDG&E of $448.95, and Avista of $52.53.

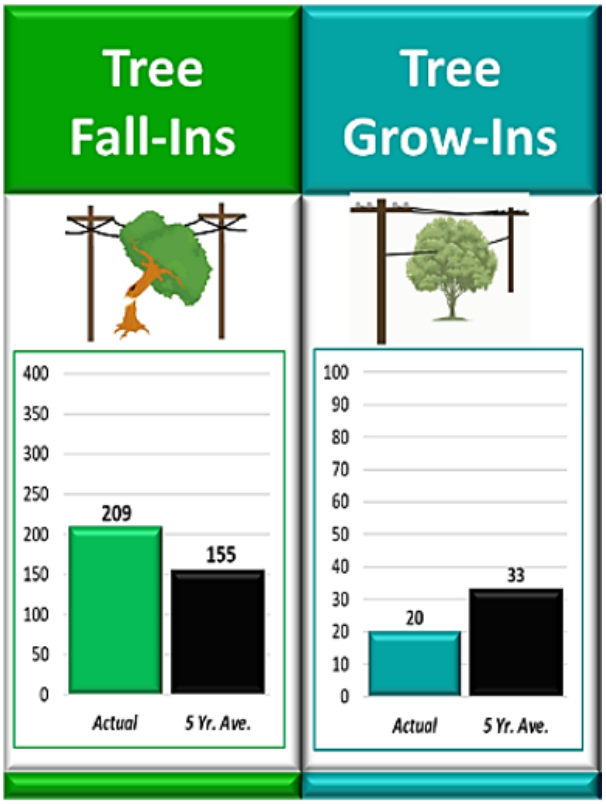
Q. Witness Tam suggests that "Avista adopt reliability metrics that track outages and ignitions from trees outside the utility corridor."[43] Does the Company track these metrics?

A. Yes. Risk trees that fall into powerlines from outside established powerlines corridors is a primary objective of the Enhanced Vegetation Management category of the Wildfire Plan. As of this writing, so far in 2022 Avista vegetation crews have removed 9,170 danger trees near distribution lines and another 1,171 trees near transmission lines.[44] Identifying risk trees near powerlines is an important tool in combatting potential wildfires. Measuring and reporting the number of trees that fall into powerlines is also an important tool

[40] Exh. AT-1T, p. 31, ll. 6-9.
[41] A quick internet search indicates that a professional level drone with thermal abilities can cost over $10,000 and requires additional manpower, training, and licensing to operate.
[42] From tables in DRH-1T-01-21-22.
[43] Exh. AT-1T, Section VI, pp. 32: 7-8, pp. 33: 8-9.
[44] Year-to-Date through June 30, 2022.

for ensuring that field treatments are effective in mitigating fire risk. For Wildfire, reducing the number of controllable events and those that leave clear evidence of spark-ignition activity are paramount to both inform and guide our efforts. Avista currently tracks tree "fall-ins" and tree "grow-ins" as separate outage incident codes. This data is included in the Wildfire monthly metrics and year-end reports.[45] Graphic No. 2 below was extracted from the June 2022 Wildfire Resiliency monthly report. The graphic indicates that 209 tree "fall-in" incidents were recorded from Jan 1 – Jun 30, 2022, as compared to the corresponding 5-yr average rate of 155. Also, that 20 tree "grow-in" incidents were reported versus a corresponding 5-yr average rate of 33. Reducing the number of tree-related incidents is the primary objective of the Wildfire Plan's risk-tree program.

Graphic No. 2: Avista Number of Tree Incidents Year-to-Date (Jan. 1 – Jun. 30, 2022)



[45] 2021 Wildfire Resiliency Year End Report submitted as DRH-1T-01-21-22.

V. WITNESS TAM DISCUSSION OF GLOSSARY

Q. In several places in his testimony, Witness Tam suggests that the Company include a glossary of terms for clarification of meaning in the Plan and states that terms used interchangeably create confusion.[46] How do you respond to this suggestion?

A. This is an excellent recommendation. We will develop just such a glossary directly related to our Plan programs, operations, and practices as well as the terminology we use in our reports and metrics to promote greater understanding and consistency. We will include this glossary in our Wildfire plans and reports going forward.

Q. Witness Tam recommends that Avista work with peer utilities and stakeholders to come to a mutual agreement on terminology[47] or use California's Energy Safety Regulations (he notes hundreds of pages of guidelines) to provide standardized definitions.[48] Is Avista planning on doing so?

A. At this time, Avista plans to utilize the standard definitions that apply to our Company and operations rather than adopt those of an outside regulatory agency, even as we acknowledge that there will likely be a great deal of commonality. Avista has been working with peer utilities and stakeholders on our Wildfire Plan since it was initially developed in 2018. The Company also participates in several peer-related organizations that deal with wildfire including the Western Energy Institute and the Northwest Utilities Fire Group as was discussed in detail in our response to PC-315.[49] Most utilities share common terminology

[46] Exh. AT-1T, pp. 11: 15, pp. 12: 6-9, pp. 14: 8-12, pp. 15: 6-7, pp. 16: 11-13, pp. 40: 5.
[47] Exh. AT-1T, Section IV, pp. 40: 7-8.
[48] Exh. AT-1T, Section VIII, pp. 16: 11-14, pp. 15: 11-13.
[49] Exh. AT-30.

related to wildfire and other operational topics. Although Avista created and leads the Northwest Utilities Fire Group, the individual utilities that participate are free to use their own terminology specific to their own organizations. Avista has no power to enforce a standard set of definitions; however, as we talk about these issues with both our Northwest counterparts and those in California, we are open to updating, improving, and refining our own definitions and descriptions in light of these interactions.

VI. WITNESS TAM DISCUSSION OF THE MITIGATION VALUE OF PROGRAMS

Q. Witness Tam requests that Avista provide descriptions of how programs will mitigate wildfires.[50] Can you provide such a summary?

A. This information is already presented in our Wildfire Plan as well as our annual reports,[51] but not in the summarized form recommended by Witness Tam. We appreciate this suggestion. In response, we created new tables, reflected in Table No. 1 and No. 2 below.

[50] Exh. AT-1T, pp. 17: 4-5.
[51] Exh. DRH-2 and Exh. DRH-3.

Table No. 1: Wildfire Program by Primary Purpose and Mitigation Value

Category	Program	Primary Purpose	Mitigation Value
Grid Hardening	Distribution Infrastructure Upgrades	Protection	Reduces spark events by making improvements to our Distribution system, including adding wildlife guards as well as replacing wood crossarms and obsolete or other equipment that has known spark potential. In addition, when upgrading wood structures the existing wooden cross arm is replaced with steel which protects against crossarm failures
	Converting Wood Transmission Poles to Steel	Resiliency	Steel poles are resilient to the impact of wildfire, protecting customer reliability and critical company assets.
	Installing Fire Resistant Pole Wraps	Protection	Helps prevent low-burning fires from accessing wood poles, protecting them from damage or destruction.
	Enhancing Transmission Inspections	Resiliency	Provides additional funding to quickly address issues found that are related specifically to fire risk.
Risk-Based Vegetation Management	100% Annual Risk Tree Inspection	Protection	Wildfire's 100% annual risk tree inspection identifies risk tree vegetation issues much more quickly than the previous 5-year inspection cycle. Use of satellite and LiDAR technology also helps identify dead, dying, and defective trees which are more likely to fail than green, healthy trees.
	Transmission LiDAR Imaging	Protection	Part of Avista's 100% annual risk tree identification.
	Distribution Satellite Imaging	Protection	Part of Avista's 100% annual risk tree identification.
	Customer Choice Right Tree Right Place "Safe Tree" Program	Protection	Partnering with private landowners to remove risk trees reduces the chances of their trees contacting powerlines and creating fire potential or loss of reliability.
	Fuel Reduction Partnerships	Protection	Partnering with land management agencies leverages funding to remove fuels near Avista facilities, as sharing the cost allows both parties to do more work.
Situational Awareness	Dry Land Mode (DLM) Operations	Protection	Use of Dry Land Mode allows setting reclosing on lines at risk for fire (based on weather and other factors) at a level that reduces the likelihood of a spark event.
	Fire Weather Dashboard	Protection	Defines the level of fire risk by feeder based on weather and wind conditions among other factors. It is used to determine when DLM will be utilized and where, pinpointing and reducing fire risk.
	Substation SCADA	Protection	Provides automation that allows remote control and operation of substation equipment to more quickly respond if fire conditions indicate elevated risk.
	Dry Land Mode Operating Devices	Protection	Provides automation that allows remote control and operation of breaker devices to more quickly respond if fire conditions indicate elevated risk.
Operations & Emergency Response	Wildland Urban Interface Maps	Protection	Allows the Company to focus wildfire efforts in areas that are most likely to be impacted by fires.
	Emergency First Responder Training	Protection	Protects both firefighters and utility workers in the event of a fire event by providing proper training in response, mitigating the safety risks.
	Expedited Fire Response	Protection	Sends fire crews directly to the site of a transmission trip event to ensure if there is a fire, it is managed immediately.

The objectives for Grid Hardening involve both distribution and transmission line facilities. The distribution system outage rate is nearly 75 times more than transmission.[52] For distribution, the goal is to reduce the number of equipment failures and pole fires which may lead to fires on the ground. The five-year average for overhead equipment failures (2017-2021) indicates that approximately 635 incidents occur annually. These events may lead to conductor strikes with the ground (e.g., broken crossarm, failed connector, broken wire). Likewise, there are about 90 pole fires per year. Avista's Wildfire Plan objectives are targeted at these types of outages.

As requested by Witness Tam, the following new table indicates the grid hardening treatments and risk reduction outcomes expected:

Table 2: Wildfire Grid Hardening Program Treatments and Related Risk Reductions

Distribution GH Treatment	Risk Reduction Outcome Expected
Replace small copper wire with ACSR equivalent	AWG #6 and smaller copper conductors fail at a higher rate than do modern all-aluminum or steel reinforced aluminum conductors. *In general, copper conductors were installed between 1920 and 1950. Their age is a factor in failure rates.*
Replace wood crossarms with fiberglass units	Pole fires are a well understood phenomena within the electric utility community. Electric current tracking during summer months leads to increased rates of pole fires. Fiberglass crossarms reduce or eliminate electric current tracking and hence, pole fires.
Add bail connectors to hot taps	Hot tap connectors are used to connect overhead transformers with primary conductors (service point). A hot tap failure may result in a wire-down situation. By adding a bail connector in series with hot tap, any electrical failure will impact the sacrificial bail material but protect the primary conductor. This reduces wire-down incidents.
Add animal guards	Avista's standard construction practices include the installation of animal guards to reduce outage incidents. Grid Hardening crews are instructed to replace missing or damaged animal guards.

[52] The five-year (2017 to 2021) annual outage rate for transmission averaged 111 versus distribution of 8188.

Replace wood with metal poles at 'high value' installations	Metal poles are used in a variety of situations including Grid Hardening. Designers are instructed to replace existing wood poles with metal at high value or high consequence installations such as road and water way crossings. Mechanical or fire related pole failures could lead to increased safety risks and reliability impacts in these circumstances.
Conversion to Underground	Though not a prescriptive requirement within Grid Hardening, select portions of overhead line will be converted to underground facilities where feasible and cost justified. Converting facilities to underground fully mitigates potential spark-ignition risk.

VII. WITNESS TAM DISCUSSION OF DRY LAND MODE

Q. Witness Tam addresses outages related to Dry Land Mode (DLM) settings and the impacts of DLM settings on customer service reliability and suggests that Avista track outages during different DLM settings.[53] Can you elaborate on this?

A. Yes. Service reliability is a function of many variables including line length, exposure to hazards, environmental conditions, and human activity. Outage rates are typically a function of external factors such as animal contacts, trees that fall into or encroach into powerlines, lightning, excessive wind, car hit poles, and equipment failures. Outage incident rates between base DLM and non-DLM circuits are similar. The difference between circuits set for DLM operation and those that remain with their nominal settings is the risk of a spark-ignition potentially resulting in a wildfire event. Avista Operating Engineers use the WUI map along with other performance metrics and system topology information to select which circuits are included in the DLM program. In 2022, 148 of 350 distribution circuits were included in the DLM program.

Avista has implemented DLM settings on circuits in fire prone areas since the early

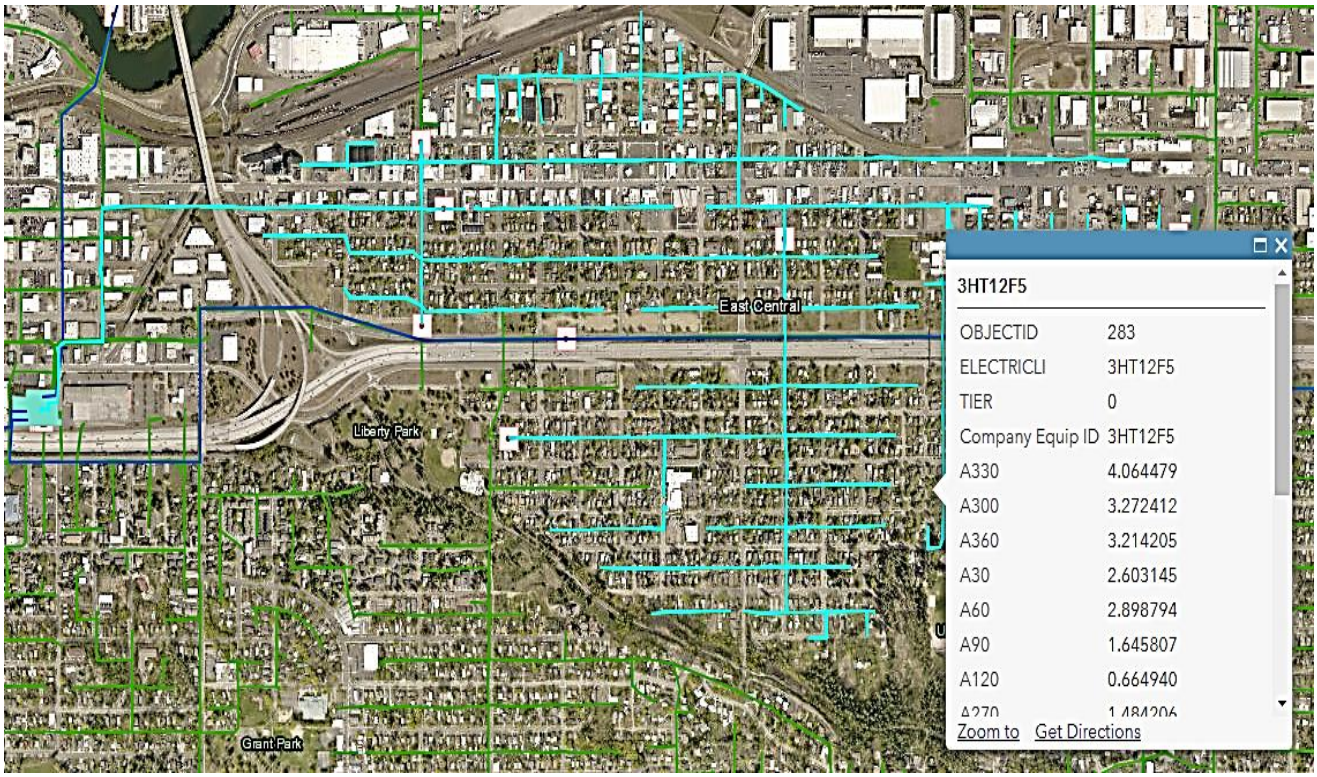
[53] Exh. AT-1T, Section VI, pp. 32: 7-9, pp. 32: 20 – pp. 33: 1.

2000s. Though reliability data is available on a circuit-by-circuit basis, there is no means by which to compare the service reliability of a circuit in DLM mode versus Nominal Reliability mode. Each individual electrical circuit is unique with respect to potential hazards (trees, animals, traffic, and storms) and reliability is affected seasonally as winter storms yield to springtime wind events, summer lightning, and then an increase in weather events into the fall season. However, reliability and health metrics are published annually.

To illustrate the DLM process and help explain this, we have chosen two circuits, one that has DLM capability and one that does not.

First example: The Third & Hatch 12F5 (*Non-DLM*) circuit serves the area in Spokane bounded by the BNRR tracks (north) and the Division Street exit from I-90 (west) as shown in blue highlight in Graphic No. 3 below.

Graphic No. 3: Third & Hatch 12F5 Circuit Map



This circuit's performance and logistics metrics are shown in Table No. 3 below for the 2019 operating year. Some historical data is also listed.

Table 3: Third & Hatch 12F5 Circuit Performance

Third & Hatch — 3HT12F5

Service Area	Spokane
Trunk [Mi]	3.14
Lat. [Mi]	15.13
Predom. Cond.	556AAC
Nom. Volt. [kV]	13.2
# Customers	1960
Conn. kVA	23654
Peak kVA	7556
Utilization factor	0.319
Scada Status	3-Phase
Pri. Meter Customer	Adm Milling Co

Per Phase kVA: A: 8256 B: 7606 C: 7793

Feeder Health Check

	Value	Cond.	Section ID
Max Loading (%)	57.59	6CU	389:229421:0
Min. Volts (V)	122.3	2ACSR	389:229419:0
Total kW Loss (%)	0.94		

Capacitor Information

Cap ID	KVAR Rating	Status	Smart ID	Location
71698	600	ON	Z915F	(2300 - 2399) E Sprague
3854	300	ON	-	(100 - 199) S Fiske
3852	600	ON	-	(0 - 0) E 1st-Sprague
3853	600	ON	-	(400 - 599) N Helena
69458	600	ON	Z914F	(2500 - 2599) E 4th

Feeder Demand (A)

2019	A Max	B Max	C Max	B Avg	FDR Imbal. (%)	Peak Reactive (KVAR)	Station Regs (Buck Boost) A			B			C		
Winter	325	293	320	213.0	0.2%	17	-8	:	1	-8	:	1	-8	:	2
Spring	304	305	317	153.8	2.9%	-74	-10	:	-1	-9	:	0	-10	:	0
Summer	222	237	198	126.5	11.2%	-86	-9	:	3	-9	:	3	-10	:	3
Fall	294	264	272	168.4	0.9%	-29	-10	:	0	-9	:	0	-9	:	1

Historical Demand (A)

Year	Summer	Winter
14	327	358
15	325	309
16	310	310
17	310	445
18	328	325
19	292	320

	Health	59	(3)
Age (Yr)	49.84	3	Good
OH:UG	10.56	1	Poor
Pole Rejection	0%	5	Excellent
CEMI3	5.4%	4	Very Good
SAIFI	1.18	3	Good
AL:CU	0.41	1	Poor

Reliability

Year	SAIFI	CAIDI	CEMI3
11	0.31	2:46	0.0%
12	3.16	1:07	1.1%
13	0.05	2:00	0.0%
14	1.47	3:04	0.0%
15	1.10	0:35	0.0%
16	0.42	2:24	0.2%
17	0.24	1:38	0.6%
18	0.19	1:53	0.0%
19	1.18	0:32	5.4%

(Reliability data disregards major event days)

	Performance	74	(3.7)
Thermal Utilitzation	0%	3	Good
Voltage Regulation		4	Very Good
MAIFI	-	-	
CAIDI	0:32	5	Excellent
Max FDR Imbalance	11.2%	3	Good
Power Factor	W 1.00 / S 1.00	5	Excellent

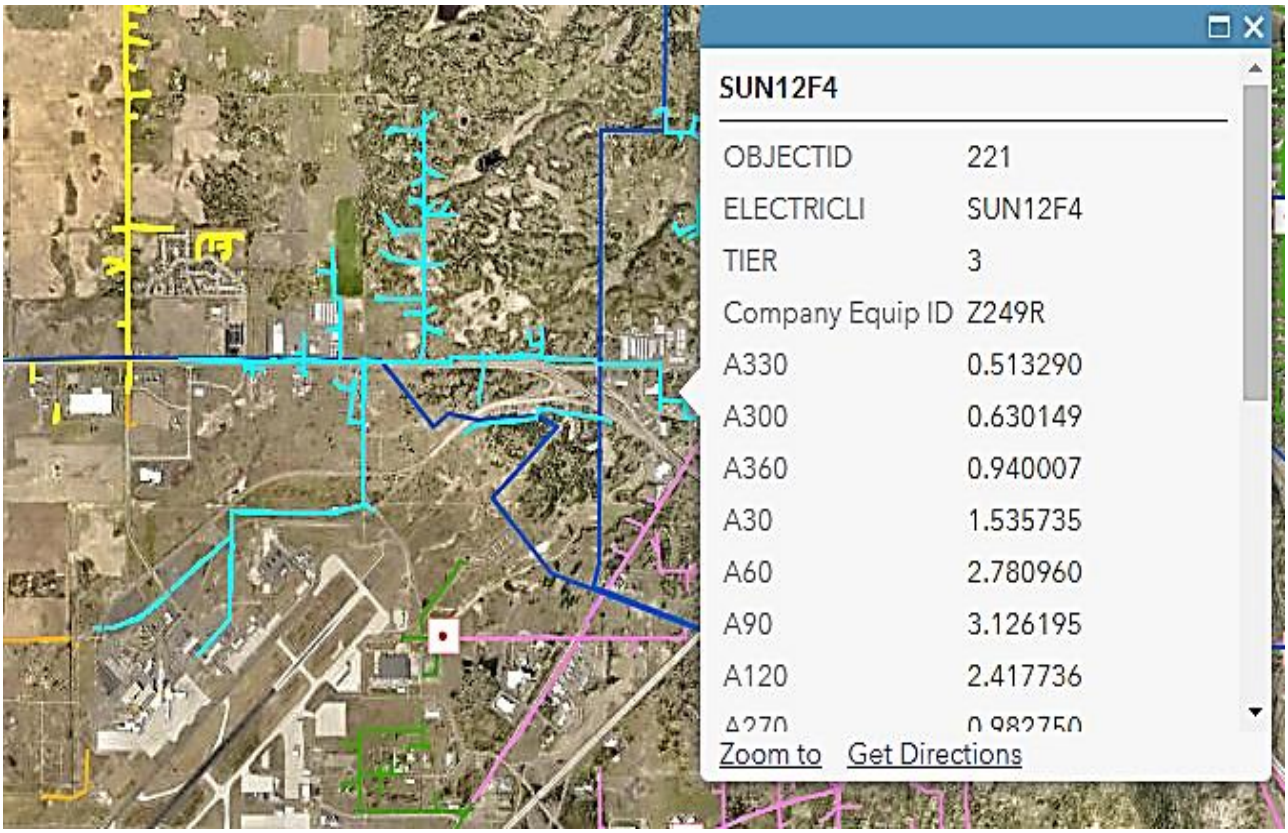
	Criticality	52	(2.6)
Commercial Acct Density	28%	3	Moderate
Customer CKT Density (Cust./mi)	107	3	Moderate
Load Density (MWh/mi)	2520	2	Low

16

Reliability metrics are shown in the lower left including measures for sustained outages, outage duration, and the percentage of customers experiencing 3 or more outages (CEMI 3).

Second example: The Sunset 12F4 (*DLM capable*) circuit serves areas west of the Maple/Ash corridor and north of Interstate 90. It is the alternate feed to the Spokane International Airport. Again, the electric circuit routing is shown in blue highlight in Graphic No. 4 below.

Graphic No. 4: Sunset 12F4 Circuit Map



The circuit's corresponding performance data is shown in Table 4 below.

Table 4: Sunset 12F4 Circuit Performance

Sunset — SUN12F4

Service Area	Spokane
Trunk [Mi]	9.26
Lat. [Mi]	22.03
Predom. Cond.	556AAC
Nom. Volt. [kV]	13.2
# Customers	1298
Conn. kVA	28354
Peak kVA	8926
Utilization factor	0.315
Scada Status	1-Phase
Pri. Meter Customer	

Per Phase kVA: A: 9741, B: 9730, C: 8883

Feeder Health Check

	Value	Cond.	Section ID
Max Loading (%)	73.03	250CU	389:321408:0
Min. Volts (V)	120.15	4ACSR	389:537138:0
Total kW Loss (%)	3.13		

Capacitor Information

Cap ID	KVAR Rating	Status	Smart ID	Location
6402	300	ON	-	(2300 - 2499) S Inland Empire

Feeder Demand (A)

2019	A Max	B Max	C Max	B Avg	FDR Imbal. (%)	Peak Reactive (KVAR)	Station Regs (Buck Boost) A			B			C		
Winter	340	367	300	204.8	-	-	-5	:	14	-5	:	14	-5	:	12
Spring	420	391	360	152.6	-	-	-5	:	14	-5	:	14	-5	:	12
Summer	420	291	360	141.9	-	-	-3	:	10	-3	:	8	-3	:	11
Fall	420	336	360	159.4	-	-	-3	:	10	-3	:	8	-3	:	11

Historical Demand (A)

Year	Summer	Winter
14	314	410
15	324	361
16	339	256
17	415	431
18	314	411
19	350	391

	Health	75	(3.8)
Age (Yr)	47.32	3	Good
OH:UG	3.01	3	Good
Pole Rejection	1%	5	Excellent
CEMI3	0.0%	5	Excellent
SAIFI	1.09	3	Good
AL:CU	6.16	3	Good

Reliability

Year	SAIFI	CAIDI	CEMI3
11	2.06	1:10	0.0%
12	1.74	1:29	0.3%
13	0.12	2:39	0.0%
14	0.32	1:17	0.0%
15	0.06	3:16	0.5%
16	0.11	5:25	0.0%
17	0.10	5:09	0.0%
18	0.32	0:31	0.0%
19	1.09	7:05	0.0%

(Reliability data disregards major event days)

	Performance	58	(2.9)
Thermal Utilitzation	0%	3	Good
Voltage Regulation		4	Very Good
MAIFI	-	-	
CAIDI	7:05	1	Poor
Max FDR Imbalance	-	-	
Power Factor W	-	-	
Power Factor S	-		

	Criticality	26	(1.3)
Commercial Acct Density	12%	2	Low
Customer CKT Density (Cust./mi)	41	1	Very Low
Load Density (MWh/mi)	1467	1	Very Low

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Again, reliability information is in the lower left portion of the page. These circuits are provided as examples of the way information is collected and illustrated in a consistent

fashion, allowing operating personnel, system planners, along with employees working in the Wildfire Team to use this data in understanding performance and logistic opportunities and challenges.

It should be noted that Dry Land Mode is used to limit the number of automatic reclose attempts that a circuit breaker/recloser will make to re-energize a faulted circuit. By limiting reclosing and therefore faulted circuit energy release, the probability of fire ignition is also reduced. Avista implemented Dry Land settings on 148 of 350 electric distribution circuits on July 18, 2022. Those circuits will remain in DLM until the end of fire season. This July and August, Avista implemented "Elevated DLM" for the first time. Since this was the first use of this methodology, results and impacts will be tracked as we gain experience in this area.

VIII. WITNESS TAM DISCUSSION OF WILDFIRE COMMUNICATIONS & OUTREACH

Q. Witness Tam recommends that Avista track wildfire-related communication and outreach metrics, improve AFN (Access and Functional Needs) outreach, provide translated wildfire-related materials, engage with community-based organizations related to special-needs and limited English proficiency customers as well as use multiple communications channels.[54] Is Avista working on these measures?

A. Yes. Like most utilities, the Company uses multiple communications channels for all customer outreach, including newsletters, customer emails, phone calls, social media, Avista's website, and through working with local media outlets. When projects directly impact specific customers, they are notified of work happening in their area and its purpose.

Avista is in the process of identifying what languages are spoken throughout our

[54] Exh. AT-1T, Section VII, pp. 37: 13-16, pp. 38: 4-9.

service territory in preparation for translating wildfire-related materials into Spanish and other required languages by next fire season. The Company recognizes the need for additional language considerations and has agreed to track the number of translated materials as a Customer Benefit Indicator (CBI) in the Company's Clean Energy Implementation Plan (CEIP), with the goal to reach additional customers by overcoming language barriers in all Company communications, including Wildfire.

Q. Witness Tam states: "Avista currently conducts no further outreach to identify customers with access and functional needs (AFN)."[55] He further implies that the Company needs to partner with local and regional entities to identify more AFN customers.[56] Is his assessment accurate?

A. No. it is not accurate. In fact, Avista is already pursuing the very recommendation Witness Tam recommends. As part of Avista's current wildfire community outreach initiative, we are actively working to identify and establish or enhance partnerships with local and regional organizations. These organizations include those directly involved in responding to emergencies as well as those who support communities and community members when an emergency arises. We anticipate that some of these partnerships will be with organizations who support and serve AFN individuals and we look forward to these opportunities.

Through the CEIP, the Company has developed metrics to identify those individuals who do not have equitable access to clean energy via several approved CBIs. A CBI and/or measurement metric related to limited functional needs will be evaluated for inclusion in the

[55] Exh. AT-1T, Section VI, pp. 38: 15-19.
[56] Exh. AT-1T, Section VI, pp. 37: 13-15.

Biennial Clean Energy Implementation Plan to be filed in November of 2023. Further, in order to ensure the voices of these individuals are heard, a member of our Equity Advisory Group is the Director of Communication and Governance for a non-profit which centers on those with special needs.

Current wildfire-specific community outreach includes a series of telephone town hall meetings with customers in high fire threat areas. One of our messages during these meetings is to encourage our customers with special needs to call customer service and let us know.

Avista recognizes the need for additional strategies to overcome barriers such as language. The Company is currently working with a third-party vendor, Public Participation Partners (P3)[57] to develop a public participation and communication plan that will be utilized for the Company's CEIP. P3 has been employed to help Avista understand how it can effectively engage with its customers, especially those in Highly Impacted Communities and Vulnerable Populations. Avista intends to use the public participation and communications models provided by P3 in Company programs requiring customer communication, such as Energy Efficiency, Energy Assistance, and Wildfire.

Avista will also continue to leverage our long-time external partnerships to serve those most vulnerable when they need us most. This includes enhanced coordination with organizations that provide services and programs for elder adults, those living with disability and/or long-term health care needs, resource constrained and underserved groups, as well as emergency management services and public health.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

[57] https://publicparticipationpartners.com/