U-210254

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April 15, 2022

Ms. Amanda Maxwell, Executive Director and Secretary
Washington Utilities and Transportation Commission
621 Woodland Square Loop SE
Lacey, WA 98503

**RE:  Docket U-210254 - Avista's Response Related to Wildfire Preparedness**

Dear Ms. Maxwell:

Avista appreciates the opportunity to provide a response to the Commission's Notice of Recessed Open Meeting to discuss Utility Wildfire Preparedness ("Notice").  In the Commission's Notice, it required Avista, Pacific Power, and Puget Sound Energy to file updated plans for wildfire mitigation and response for the 2022 wildfire season in this docket by April 15, 2022. The Commission further asked that Avista, Pacific Power, and Puget Sound Energy respond to or address the following questions in their plans.

Before responding to the specific questions contained in the Notice, attached are the four following documents that are responsive to the Commission's request, and which are referenced throughout this response:

> **Attachment A** – Wildfire Resiliency 2021 Year End Report
> **Attachment B** – Avista Utilities Wildfire Resiliency Plan 2022
> **Attachment C** – Power Outage Safety Planning Brochure
> **Attachment D** - Wildland Urban Interface (WUI) Map

1. **Please provide a synopsis of the utility's experience with the 2021 fire season. Please identify the fire events that happened in your service territory, the location of those events, and how much damage to utility infrastructure and local communities occurred, if any.**

   Please see Attachment A, Avista's "Wildfire Resiliency 2021 Year End Report", specifically pages 19 through 21 for "Lessons Learned".  More specifically, for 2021, it was not an unusually damaging fire season for Avista infrastructure, although it provided an opportunity to prove the rapid deployment skills of the fire mesh wrap crew. Last summer as a rapidly spreading wildfire headed toward Avista's Noxon-Pinecreek 230 kV line, Avista worked with Idaho Department of

Lands to determine the fire's probable course and where it might impact lines. The wrap crew was sent to the site to wrap poles ahead of the fire. Fires that impacted Avista's system include:

- Bedrock Fire,[1] located 25 miles northeast of Lewiston, Idaho: 9 transmission structures, no homes or outbuildings
- Lind Fire, near Lind, Washington: 5 distribution structures, 9 transmission structures, no homes or outbuildings
- Snake River Complex Fire,[2] near Lewiston, Idaho: no Avista losses, homes or outbuildings
- Silcott Fire,[3] west of Clarkston: 19 distribution structures, no homes or outbuildings
- Character Complex Fire,[4] north of Silver Valley, Idaho: no Avista losses, homes or outbuildings
- Ford/Corkscrew Fire,[5] near Deer Park, Washington: 30 homes, 113 outbuildings, 19 distribution structures

## 2. How is the utility identifying areas of greatest wildfire risk within its service territory? Where are those areas located?

In 2021, a multitude of weather and system variables were used to quantify Avista's wildfire risk areas, including wind, humidity, wind direction, facility conditions, facility proximity to populated areas and longer-term weather conditions including drought. By using these more dynamic datasets the Company has been able to forecast fire risk based on weather and system performance. This means that the areas of risk can change with the change in the weather, for example as winds come from different directions or as drought effects one area more than another.

In addition, Avista's Wildland Urban Interface (WUI) map is used to quantify underlying static risks by correlating human development in fire prone areas. The majority of Avista's risk on the WUI map exists in the northern and eastern areas of the service territory. There are small pockets of risk in the southern and western corners of the service area as well. Provided as Attachment D is a copy of the WUI map.

### a. What data is being used in this analysis?
Data from the National Weather Service is combined with Avista system performance data to yield a 7-day fire risk forecast for each distribution circuit. Avista operates over 350 individual circuits.

### b. What modeling is the utility using to predict periods of heightened wildfire risk based on high winds or other factors contributing to the sparking or spread of wildfire?

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[1] https://inciweb.nwcg.gov/incident/7796/
[2] https://inciweb.nwcg.gov/incident/7636
[3] https://inciweb.nwcg.gov/incident/7626/
[4] https://inciweb.nwcg.gov/incident/7654/#:~:text=The%20Character%20Complex%20was%20originally,the%20Idaho%20%20Panhandle%20National%20Forests.
[5] https://www.krem.com/article/news/local/wildfire/ford-corkscrew-fire-evacuations/293-4ad236c3-8bee-4d41-9faa-df283dde1337

Since 2020, Avista has used an ESRI based GIS system to quantify weather-related fire risk.

    **c.  What strategies is the utility using to mitigate risk in each of its service territory risk areas? Do those strategies change during times of heightened wildfire risk?**

Avista's updated Wildfire Plan, provided as Attachment B to these comments, differentiates short-term, weather-related list from underlying long-term climate-related risks. Avista is investing in infrastructure and systems to reduce the long-term risks in addition to increasing investments in vegetation managements. However, within the operating horizon, there are a number of strategies Avista is using to mitigate weather related fire risk. As noted, Avista has deployed a Dry Land Mode operating system since the early 2000s. This program limits automatic circuit reclosing to customers located in high fire threat areas. To date nearly 110 of 240 devices have been automated, giving system operators the ability to align system protection with fire risk.

3. **What lessons, if any, did the utility learn in the 2021 wildfire season, and how have these lessons changed plans for the 2022 wildfire season, if at all?**

Avista's Wildfire Plan incorporates the "Plan-Do-Check-Adjust" methodology, so the Company is continually seeking ways to improve our programs and response to wildfire situations. 2021 was a year in which partnerships were strengthened, including Avista's participation in external fire planning, strategy and review events.

Avista began using technology including LiDAR and satellite imaging to add speed, accuracy, and analytics to existing vegetation management practices. Use of this data was new to the Company in 2021, and as familiarity with these new tools grows, it is anticipated that 2022 will bring about more robust use of these new datasets and provide additional precision in vegetation management planning and implementation. The Company also learned that fire mesh protection can be deployed ahead of wildfires to protect fire threatened infrastructure. Though the Fire Weather Dashboard was initially deployed in 2020, a version 2.0 was released prior to the 2021 fire season and we plan to release a version 3.0 prior to the 2022 fire season. For more information, please see Attachment A, pages 19-21.

4. **Is the utility aware of best practices for utility wildfire mitigation implemented in other jurisdictions? Please identify these best practices, the source of these best practices, and any steps the utility is taking to incorporate these best practices into its own wildfire mitigation practices.**

Avista has created, in a matter of a few years, a comprehensive, thoughtful, carefully planned set of programs that will make a difference in mitigating wildfire risk. The Company partnered with experts from across the utility industry, fire professionals, state and local agencies, and inhouse expertise to ensure that the Wildfire Plan and its elements are aligned with industry best practices but also reflect and leverage Avista's history with fire. When Avista's Wildfire Resiliency Plan is compared to those of other utilities such as those in California, we believe the Company compares quite favorably to its peers. Even while implementing almost all of the same programs,

Avista has kept cost per customer quite low, as shown in the table below.[6] In fact, Avista's spending per-customer-per-year (including operations and capital) is among the lowest of the group.

**Table 1: Wildfire Total Program Cost Comparison[7]**

| Program Total Costs (Combined) | 2020 Actual Spend ($millions) | 2021 Forecast Spend ($millions) | 2022 Forecast Spend ($millions) | Customer Count | 3-Year Ave. Cost/Customer |
|---|---|---|---|---|---|
| SDG&E | $569,237 | $646,466 | $669,869 | 1,400,000 | $448.95 |
| PG&E | $4,862,464 | $4,955,161 | $5,197,811 | 5,100,000 | $981.40 |
| SCE | $1,336,928 | $1,705,672 | $1,785,097 | 5,000,000 | $321.85 |
| PacifiCorp (CA only) | $19,416 | $27,772 | $24,015 | 44,732 | $530.59 |
| NV Energy | $45,348 | $89,757 | $101,632 | 1,335,164 | $59.10 |
| Rocky Mountain Power | $41,681 | $55,692 | $54,934 | 950,000 | $53.44 |
| Idaho Power | n/a | $2,006 | $9,465 | 500,000 | $11.47 |
| Avista | $5,851 | $22,577 | $33,972 | 396,000 | $52.53 |

Avista also compares quite favorably with others on a "cost per mile" basis:

**Table 2: Wildfire Mitigation Cost Per Mile[8]**

| Wildfire Cost Per Mile | Miles of Distribution | Miles of Transmission | Total Line Miles (Approximate) | Average Total Wildfire Mitigation Cost 2020-2022 | Wildfire Mitigation Cost Per Mile |
|---|---|---|---|---|---|
| SDG&E | 22,360 | 1,920 | 24,280 | $628,524,000 | $25,886 |
| PG&E | 106,681 | 18,466 | 125,147 | $5,005,145,333 | $39,994 |
| SCE | 91,375 | 12,635 | 104,010 | $1,609,232,333 | $15,472 |
| PacifiCorp (CA only) | 2,522 | 729 | 3,252 | $23,734,333 | $7,299 |
| NV Energy | 14,000 | 1,900 | 15,900 | $78,912,233 | $4,963 |
| Rocky Mountain Power | n/a | n/a | 18,000 | $50,769,020 | $2,821 |
| Idaho Power | 27,968 | 4,830 | 32,798 | $15,952,500 | $486 |
| Avista | 19,000 | 2,770 | 21,370 | $20,799,944 | $973 |

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[6] Note that Idaho Power has a very different risk area profile than Avista, with approximately 17% of their total infrastructure in high-risk zones versus Avista with about 60% of our infrastructure in elevated risk zones. The Idaho Power % information is based on our discussions with Idaho Power directly. Information that is available: https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE2102/Staff/20210408Comments.pdf pg. 7-8

[7] San Diego: www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf, page 7-8.
Portland General Electric: www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/2021-Wildfire-Safety-Plan.pdf, pg. 36-37,
Southern California Edison: www.sce.com/sites/default/files/AEM/Wildfire%20Mitigation%20Plan/2021/SCE%202021%20WMP%20Update.pdf pg. 30-31
PacifiCorp:https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/wildfire-mitigation/R.18-10-007_PacifiCorp_2021_Wildfire_Mitigation_Plan_Update_3-5-21.pdf pg. 23-24
Nevada Energy: www.nvenergy.com/safety/ndpp - Download PUC Plan via this webpage. (Note that this was scanned in so is not searchable), pages 35-92, 109, 113, 124. Summary chart on pg. 129-131
Rocky Mountain Power: https://www.rockymountainpower.net/content/dam/pcorp/documents/en/rockymountainpower/rates-regulation/utah/filings/docket-20-035-04/10-05-20-phase-i-revenue-requirement-rebuttal-testimony/07_Mansfield_Testimony_and_Exhibits.pdf pg. 2

[8] Ibid.

Avista is performing grid hardening measures that are consistent with our peers:

**Table 3: Wildfire Program Component Comparison**[9]

| Wildfire Programs | Wood to Steel | Fiberglass Crossarms | Fire Wrap | Covered Conductor | Fuses / Sectionalizing Devices | Small/Bare Wire Replace. | Enhanced Veg. Inspections | Installing Weather Stations / Cameras | Targeted Undergrounding |
|---|---|---|---|---|---|---|---|---|---|
| San Diego Gas & Electric | Yes | Yes | Unknown | Yes | Yes | Yes | Yes | Yes | Yes |
| Pacific Gas & Electric | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Southern California Edison | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| PacifiCorp (California only) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| NV Energy | Yes | Unknown | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Rocky Mountain Power | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No |
| BPA | Yes | n/a | Yes | Unknown | Yes | n/a | Yes | Yes | n/a |
| Idaho Power | Yes | Yes | Yes | No | Yes | Unknown | Yes | Yes | No |
| Avista | Yes | Yes | Yes | No | Yes | Yes | Yes | No | Yes |

5. **What local, state, federal, or other privately funded research, pilots, or programs exploring emerging wildfire mitigation technologies or best practices are you participating in?**

Avista has self-funded a comprehensive risk review, has completed one vegetation pilot project, and is embarking on a third pilot project in 2022 as described below. In early 2021, Avista worked with consultants to development a static fire risk model using large data techniques. This analysis confirmed the validity of Avista's WUI model and has helped inform both short-term and long-term risk strategies going forward. In late 2020, Avista partnered with AiDash to acquire and analyze vegetation and powerlines in the Kellogg, Idaho area. This pilot has now extended to collecting satellite imagery across the electric service territory and using that data to identify and prioritize both vegetation encroachment and fall-in risks associated with the electric distribution system. This year, Avista is launching another pilot to replace trees near powerlines with species that will not interfere with overhead wires. This limited Customer Choice – Safe Trees campaign will help build out a more comprehensive offering for 2023 and beyond. The Company is excited to be working directly with customers to reduce their local fire risk.

6. **What vegetation management strategies and actions are you taking to mitigate the risk and potential impact of wildfire in your service territory for 2022?**

Prior to 2020, Avista's approach to distribution vegetation management was cadence based with a goal of addressing the entire system over a five to seven-year period, or about 20% of the distribution system annually. The routine maintenance program budget included the cyclical program maintenance, customer requested service requests, local office area requested work, a tree replacement program (Right Tree Right Place), and risk tree inspection and mitigation. As part of the development of Avista's Wildfire Resiliency Plan and developing strategy, distribution vegetation management was identified as an area of risk that could be addressed through an

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[9] Ibid.

enhancement of the distribution vegetation management program. The identified areas of enhancement included: an annual risk tree program, increased emphasis of "Right Tree Right Place" in high fire risk areas, and the addition of best project management practices to the routine maintenance program.

Based on these objectives, the enhanced vegetation management program was developed. In 2020, the Risk Tree Program was split from the cyclic Routine Maintenance Program and given its own budget and own scope of work. Now the two programs work synergistically to maintain all trees impacting the Avista distribution system. In alignment with its Wildfire Resiliency Plan, Avista has targeted the goal of inspecting the entire distribution system annually for risk trees using a combination of satellite data and visual inspection.

For the transmission system, all 230 kV and other voltage transmission lines that are identified as an element of a Major WECC Transfer Path are inspected annually with no more than 18 calendar months between inspections. Transmission lines that are not identified as elements of a Major WECC Transfer Path have historically been inspected every 5 years, but in 2021 with the aid of aerial LiDAR acquisition, 100% of the system was inspected. In alignment with Avista's Wildfire Plan (Attachment B), 100% risk tree inspection of the transmission system is the goal going forward.

   a. **How do these actions differ, if at all, from business-as-usual vegetation management practices? What changes, if any, has the utility identified or made for the 2022 wildfire season compared to the 2021 fire season?**

   As noted, the Distribution Vegetation Management Program was divided into two programs: 1) Routine Maintenance, which is the continuation of cycle-based trimming (e.g. once every 5 years), and 2) a Risk Tree program to inspect 100% of both transmission & distribution systems annually. Distribution risk tree inspection will consist of ground-based visual inspection of the rural miles (approximately 6,466 miles) and satellite data acquisition will cover 100% of the distribution system (7,675 miles). The rural distinction for ground-based visual inspection was implemented as part of the 2022 work plan. There is not a rural/non-rural distinction for transmission risk tree inspection and so with a combination of ground-based, aerial, and LiDAR inspection, 100% of the transmission system will be inspected for risk trees in 2022.

   Avista's Wildfire Plan proposes inspection of 100% of its non-urban distribution system on an annual basis to identify and schedule for mitigation the removal of risk trees that have the potential to contact conductor and potentially create a spark event. This is an existing integral part of the Plan but is a stretch goal based on the size and diversity of Avista's service territory as well as past difficulties acquiring adequate inspection and line clearance certified removal crews. However, we believe that mitigating risk trees is a vital component in reducing wildfire risk, perhaps the most vital aspect of the Plan, and believe that setting this target helps ensure that this important goal is met. The program has set a goal for 2022 and beyond of mitigating risk trees within six months of identification on the distribution system. To achieve this goal, the Plan includes prioritization of work based

on the date of identification as well as forecasting the appropriate inspection and mitigation labor resources regionally to do so.

In 2020 Avista acquired 839 miles of LiDAR data on the transmission system, followed by an additional 1143 miles in 2021. The 2021 LiDAR acquisition, in combination with traditional ground-based inspection and visual helicopter inspection, resulted in inspection of the full 2,270 miles of the transmission system in 2021. In 2022 we plan to collect LiDAR and high-resolution photography on the entire 2,270 miles of the transmission system for the first time.

With the help of LiDAR and satellite imagery and associated data results, Avista is confident that crews can be directed specifically to the highest priority areas on both the transmission and distribution systems. This new technology, in conjunction with the Company's existing proven inspection techniques, will guide vegetation management practices into the future and should result in reductions in tree-related outages, which are one of the most common causes of spark events.

**b. Is the utility prioritizing vegetation management according to areas of greatest risk? If so, please describe.**

Avista set the goal of inspecting the entire non-urban distribution system annually for risk trees. To prioritize work and ensure that the areas with the highest identified risk are addressed first, criteria for vegetation management polygon selection to reduce risk were evaluated, and it was determined that using the Wildland Urban Interface developed by the Wildfire Mitigation team would allow for work to be prioritized in areas with the highest wildfire risk. As discussed in response to Question No. 2, Avista has developed a WUI Map (Attachment D).  The Avista WUI identifies three wildfire risk levels:

- Tier 1: Moderate levels of fuel and low to moderate housing densities (low)
- Tier 2: Moderate to high levels of fuel and moderate housing densities (medium)
- Tier 3: High fuel levels and moderate to high housing densities (high)

By overlaying the vegetation management polygons with the WUI map, a percentage of the polygons with a tier 3 (highest risk), tier 2, and tier 1 WUI designation were calculated. These percentages were used to generate a risk score for each vegetation management polygon. A weight was applied to each of the WUI tier levels to ensure that tier 3 areas are placed at higher priority levels than WUI tiers with lower risk.

All risk trees with the potential of imminent fall-in or contact hazard to the energized facilities are trimmed or removed to eliminate potential for fire ignitions and outages.  A risk tree is visibly dead, diseased, dying or possesses obvious structural defects that could fall into the conductor or over the high-pressure gas pipeline route and should be assessed as defined in ANSI A300 (Part 9)-2017 Tree Risk Assessment - a. Tree Failure. Assessments conform to level 1 standards as performed from center of corridor, using

ground-based patrols or from a vehicle and or by analyzing high-resolution images captured via satellite.

On the transmission system, risk tree work is identified through aerial and ground patrol, and from reports from line servicemen, field personnel, and the System Operator. Ground patrols are necessary for visually confirming hazard trees identified from aerial patrols, as well as identifying diseased and infested green trees that may pose a hazard to the lines. Ground patrols are conducted by driving, walking, and the use of ATVs on existing roads and trails.

Trees are inspected on and off the right of way, and within a tree length of the forest edge. Trees are assessed, and decisions for action are made based on species, condition, location in proximity to the line, structural integrity of the tree, anticipated growth, tree movement, species failure characteristics, history of failure in the vicinity, terrain, accessibility, location of trees within the span, line voltage, line construction, wire sag and sway, perceived fire risk, and easement or permit information.

This risk tree removal work is scheduled as soon as practicable after trees are identified. Risk tree work may also be done during major or minor re-clearing jobs as part of routine maintenance.

c. **What technical methods (aerial, on-the-ground, etc.) does the utility use to inspect vegetation near its equipment throughout its service territory. What is the frequency of vegetation inspections?**

Vegetation inspections are completed annually on the distribution system. Approximately 20% (~1,500 miles) of the system is inspected for routine maintenance work every year. During a routine inspection, any and all risk trees within those polygons are also identified and planned for mitigation. Risk tree inspections are completed annually on the remaining non-urban miles (6,466 miles total) that are not already in the routine maintenance plan that year. Inspection methods for this work are primarily ground-based visual. However, in May of 2021, the team identified an opportunity to complete a helicopter inspection in an isolated rural area to increase inspection capacity and to support the rapid movement of Line Clearance crews from restricted areas into an area where ground inspection had not been completed.  Helicopter inspection is an atypical means of inspecting the distribution corridor due to the convoluted nature of circuits, narrow corridors, and the complexities of capturing the volume of work that amasses over a 5-year-cycle. This work serves as a template to expand distribution planning capabilities to aerial inspection and to incorporate digital satellite analysis into the existing planning workflow.

In July of 2020, the project team was assigned to develop, pilot, and field test the use of digital satellite analysis to assess vegetation on the distribution system as a means of augmenting work planning: pilot tests were conducted in areas of Kellogg, Spokane, and Odessa. In September of 2021, initial analysis of the entire distribution system was completed, and work began to explore a means of integrating the analysis into the

vegetation management planning workflow. In 2022, the vegetation management team will integrate and validate the analysis to establish areas of no vegetation to eliminate ground inspection. In addition, overlaying the analysis with the existing work selection methodology will provide means of validating the satellite analysis as traditional ground inspection work is performed. 100% of the system will be analyzed again in 2022.

Vegetation inspections are completed annually on the transmission system as well. All 230 kV and other voltage transmission lines that are identified as an element of a Major WECC Transfer Path are inspected annually with no more than 18 calendar months between inspections. Aerial inspection for vegetation may be combined with operations aerial line patrol. Transmission lines that are not identified as elements of a Major WECC Transfer Path have historically been inspected every 5 years, but in 2021 with the aid of aerial LiDAR acquisition 100% of the system was inspected. 100% risk tree inspection of the system is the annual goal going forward. LiDAR acquisition will be completed for the entire transmission system in 2022.

Line inspection schedule is determined annually and is set on a flexible schedule allowing for availability of helicopters, weather, access, condition of the right-of-way (ROW), length between inspections cycles, anticipated growth of vegetation, and reliability information.

ROWs in forested areas are primarily inspected by ground. Ground inspection on these ROWs allows for a more thorough check of trees both on and along the edges, and the ability to observe specific issues with more certainty. Ground inspections are conducted by driving, walking, and riding ATVs on ROW using existing roads, trails, and access points.

7. **How is the utility considering infrastructure hardening in its wildfire mitigation plans for 2022?**

As stated in the Wildfire Resiliency 2021 Year End Report (Attachment A, page 16), approximately 40% of Avista's distribution system and about 20% of the transmission system are in elevated fire threat areas. The objective of Avista's grid hardening program is to replace aging and obsolete equipment that could lead to potential spark events and to make the system more resilient to the threat of wildfires.

Distribution Grid Hardening is the single largest capital investment in the Wildfire Plan (see Attachment B, pages 10-13). It includes elements designed to reduce equipment failures and their associated spark-ignition potential. Direct pole fires, together with equipment failures, can be mitigated by updating equipment and conductors. Though Avista has well-established programs to replace poles, conductor, and equipment, existing programs are condition-based and aligned with reliability objectives. Wildfire grid hardening objectives are focused on reducing the number of spark ignition events. The following activities are included in the Wildfire Resiliency Distribution Grid Hardening plan:

- Replace wood crossarms with fiberglass units (reduces pole fires)
- Remove small copper wire (reduces wire failure)
- Install wildlife guards (reduces wildlife contacts)
- Replace wood poles with steel poles at 'high value' locations (e.g. highway crossings, heavily-guyed structures, and equipment poles)
- Eliminate open wire secondary districts (remove obsolete equipment)
- Install wedge/bail clamps at hot tap connection points (reduce hot-tap connector failures)

**a. What infrastructure hardening strategies have been identified for the utility's system, including areas at higher risk for fire?**

Avista's Grid Hardening primary programs are described below and in more detail in Attachment A pages 2-6.

- <u>Distribution Grid Hardening</u>. This program includes replacing aging and deteriorated poles, replacing wood crossarms with fiberglass, changing out obsolete copper wire with more resilient modern steel reinforced aluminum wire, installation of wildlife guards to reduce animal-related events, eliminating uninsulated open wire secondary conductors, installing wedge connected stirrups to provide protection and strength at hot tap connection points, and undergrounding conductor on a case-by-case basis when cost-justified. The Wildfire Plan's Distribution Grid Hardening program is focused on circuits located in high fire threat districts.

- <u>Transmission Steel Pole Conversion</u>. Avista has systematically replaced wood transmission poles and structures with steel since 2006, typically for poles which were damaged or failed, or during routine transmission projects. With the Wildfire Plan, replacement efforts are now focused on making the transmission system resilient to wildfire in high fire threat areas. The Company has created a prioritized list of wood structures to be replaced with steel based upon WUI zone location, historical fire patterns, and high canopy areas where steel poles would be the best choice versus low-vegetation areas where wood poles can be protected with fire resistant wraps. Steel poles have the added benefit of increasing reliability, as they are less likely to fail. Steel poles are stronger and less prone to wind damage. Steel poles are resistant to the impacts of fire, thus increasing resiliency.

- <u>Transmission Wood Pole Fire Resistant Wrap.</u> The Company is installing fire resistant (FR) mesh wrap on transmission wood poles in high fire threat areas to protect these poles from the impact of fire. Historically, the Company has installed fire-resistant paint on wood poles and has found it to be effective in protecting structures during fire events. However, FR paint typically lasts about 3-5 years, sometimes longer under the right weather conditions, but must be checked and
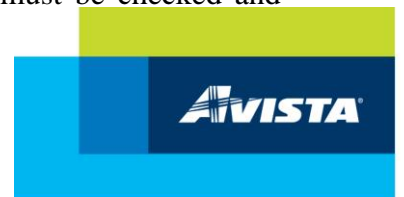
replaced regularly, as it cracks, chips, and literally falls off the poles over time. Fire resistant mesh wrap is a new product. Avista learned about this product from Southern California Edison and tested it in March of 2020 with positive results. The mesh has been proven to be more effective than the paint for approximately the same installation cost per pole, requires no maintenance, and has an estimated life of over 20 years.

**b. How do these strategies compare to peer West Coast utilities with similar service territory characteristics?**

Many of these fire mitigation strategies are used by Avista's peers across the Western U.S., specifically steel replacement and fire mesh wrap. The Distribution Grid Hardening elements may vary slightly but are essentially the same as shown in Table 3 in the response to Question 4 above.

**c. How often does the utility inspect its infrastructure, particularly in areas of heightened fire risk? What type of inspections are performed (aerial, on-the-ground, etc.)?**

The Wildfire Resiliency Grid Hardening scope is not aligned with condition-based programs but is a risk-based approach focused on replacing equipment and conductors associated with spark-ignition potential. Grid Hardening focuses efforts in Wildland Urban Interface (WUI) Tier 2 and 3 areas.

For Transmission, Avista has conducted annual aerial and ground inspections for many years as required by NERC regulations and Avista's Transmission Maintenance Inspection Plan (TMIP), which requires inspection of 100% of transmission lines annually. Current inspection programs (ground and aerial) are geared towards identifying reliability risks. The Wildfire Plan adds annual LiDAR inspections, which will identify vegetation-related risk.

Distribution inspections are conducted as described in question 6 Part a) above, including cycle-based trimming (completing 20% of the distribution system every year), and risk tree inspections of 100% of both transmission and distribution systems annually. For the distribution system, we use a satellite-based system which allows for a system-wide approach rather than conventional human based collection over a portion of the system. Satellite images will be collected annually.

For more details, please see Attachment A, pages 6-9.

**d. How are planned grid hardening activities being balanced or coordinated with vegetation management activities? How is general maintenance of infrastructure being balanced or considered in tandem with wildfire-related infrastructure hardening?**

Though grid hardening and vegetation management programs are conducted independently, they are managed under a single department (Asset Maintenance) which does allow project managers and designers to work closely with system foresters and to mitigate vegetation issues that might interfere with construction activities.

8. **What strategies will the utility use or explore for this wildfire season to enhance situational awareness for utility operations and for its customers?**

   a. **What information, datasets, or programs, such as those compiled and managed by federal agencies like NOAA, does the utility have at its disposal to enhance situational awareness? What new technologies such as enhanced weather forecasting or LIDAR scans of transmission lines are you using to prepare for the wildfire season?**

   For the upcoming wildfire season, Avista will continue to use data from the National Weather Service (Spokane, WA) incorporated into the 7-day fire risk monitor we call the Fire Weather Dashboard. Also, data from NOAA's Advanced Very High-Resolution Radiometer (AVHRR) Surface Reflectance will be incorporated. This information provides drought conditions across the western states.

   There are 240 recloser devices in Avista's Dry Land Mode protection program. 110 of these devices have been fully automated by adding communication gear such as fiber optic, mesh WiFi, or cellular modems. The remaining 130 devices are part of a multi-year program to be replaced and to extend their associated communication systems.

   Several of these projects include rural substations that have no communication network at all. The ability for system operators to monitor and control these substations is not only a fire mitigation strategy, but also promotes overall safety for Avista employees and the general public. Outside of substations, Avista has identified many reclosers that either need to be replaced or updated in order to support an automated Dry Land system.

   b. **Are there specific deficiencies in information that the utility plans to address to prepare for this wildfire season? What information deficiencies are challenging for the utility to address or resolve on its own?**

   We have worked through a number of gaps in datasets including fire history and the transmission steel pole inventory. We have also incorporated new data sources including the USDA's Housing Unit Impact. We also plan to incorporate NASA's fuel moisture data into the Fire Weather Dashboard. More generally, pages 22-25 of Attachment A provide a summary of Avista's Current and Future Program Summary

   c. **What partnerships has the utility cultivated with first responders, land managers, and emergency operations personnel in preparing for the 2022 wildfire season?**

Avista's Wildfire Resilience Plan includes a partnership initiative called Expedited Response. Avista piloted this concept with Spokane County Fire during the 2020 and 2021 seasons. We are currently in the process of expanding this arrangement to nearby counties including Kootenai, Bonner, Stevens, and Nez Perce Counties. The expedited response agreements allow the Avista transmission system operator to request a fire patrol following fault activity on the transmission system.

Avista has also engaged several land management agencies to advance fuel reduction efforts. Avista is working with Washington Department of Natural Resources, U.S. Department of the Interior (Bureau of Land Management), the U.S. Forest Service, the City of Spokane, Idaho Department of Lands and four tribal nations including Spokane, Colville, Nez Perce and Coeur d' Alene.

d. **What communication channels and procedures are in place to coordinate planning and response efforts with these entities?**

Avista attends weekly planning and situational awareness briefings hosted by state firefighting agencies such as the Washington Department of Natural Resources and the Idaho Department of Lands. We are also in close contact with the U.S. Forest Service and Bureau of Land Management. Email, phone calls, virtual, and in-person meetings account for the bulk of conversations. In addition, Avista hosts a weekly Fire Planning Unit and has invited several external state and local partners to participate.

After last fire season, Avista was invited to participate in the 2021 Washington State Fire Season After Action Review. The purpose of this multi-agency task force is to identify the strengths and weakness of the previous fires season response and to identify areas of improvement for 2022.

The benefits of these partnerships are numerous. For example, Avista has developed excellent communication channels that allow participation in external briefings and collaborator meetings when large fires occur, especially those that may involve Company facilities and customers. Avista's operations staff are invited to attend daily briefings and meetings on large fires with external fire managers to gain information on their planned suppression activities and as a forum for strategizing on joint assistance or response. This type of coordination also helps communicate externally with customers related to the possibility of disruptions to energy delivery. These large fire meetings also inform planning restoration needs that may arise due to a wildfire and the subsequent suppression

e. **What plans does the utility have in place to communicate with customers, including highly impacted communities, vulnerable populations, and medically vulnerable customers, about wildfire risk for this season overall, as well as specific wildfire risks or events?**

A key element of the Company's Wildfire Resiliency Plan is ensuring that Avista stakeholders know that the Plan is in place and that the Company is taking the right

precautionary steps to reduce the potential for and impact of a wildfire. A strong and effective strategic communications campaign is critical to ensuring broad awareness and to demonstrate Avista's commitment to reducing the impact of wildfires. This communications plan is targeted to reach all of Avista's key stakeholders, including customers, employees, state and local government officials and regulators, law enforcement and fire departments, local media, and shareholders.

Our wildfire communications goals are to create awareness of Avista's plan to prevent or mitigate the risk of wildfires, promote the safety and well-being of all customers, and to engage customers in programs that impact them and their communities. Some examples:

- *Avista Connections:* Articles in Avista's mailed and emailed customer newsletter in advance of fire season in May and June help educate all customers about Avista's Wildfire Resiliency Plan and in preparing property for wildfires. We also include updates in July and August newsletters.
- *Customer email:* Information about wildfire safety and preparation is sent to all customers in May in preparation for wildfire season. Email is also used to notify customers when there is a specific event in their area that might impact them or their Avista service.
- *Department of Natural Resources Wildfire Ready Neighbors Program:* Avista helped promote DNR's new Wildfire Ready Neighbors as it was piloted in Spokane County last year by including links to the program in customer emails, newsletters and on social media including posts on Facebook, Instagram and Twitter. We share resources from agencies that will help customers become better prepared and help prevent wildfires.
- *Dry Land Mode Specific Communications:* Emails are sent to all impacted customers and press releases are distributed to the appropriate areas of the electric service territory during Dry Land Mode operations. If there is a need for an elevated dry land mode, we would follow up with specific communication to customers in the impacted areas, which would include email and phone calls.
- *Telephone Town Hall:* Avista intends to use this platform to communicate broadly with customers in highly impacted communities, including vulnerable populations and medically vulnerable customers, about overall wildfire risk and preparations for this season. In addition to answering customer questions, this platform also yields helpful information about how our customers are preparing and what is most concerning to them.
- *Community meetings:* In July 2021, Avista held a telephone town hall with community and business leaders. As we are able to safely go into communities in 2022, we plan to host a series of meetings for these leaders and other community partners throughout our service territory but with a particular focus on our more rural, higher-risk areas. In these meetings we will share updates on our wildfire

plan progress and plans for the future. We also plan to coordinate with community and business leaders to prepare for events.

- *Avista Customer Preparation Guide:* Provided as Attachment C is a copy of Avista's Customer Power Outage Brochure.

In order to specifically identify and communicate with our vulnerable customers, in August 2021, staff from the Company's Economic & Vitality Department convened a group of Spokane County organizations that have a role in supporting vulnerable individuals and groups during extended service outages (planned or unplanned). Representatives from emergency services, social service agencies and community-based organizations that provide support to the target group have been invited to participate in discussions designed to gain a better understanding of each organization's role in support of vulnerable populations during mass and extended outages. The objective is to establish a coordinated response so entities can collaborate efficiently as each undertake their role during an energy-related community event. Once solid learning from the Spokane County experience has been obtained, similar efforts will be replicated in communities throughout the Company's service area.

In addition, outreach during the 2021 fire season focused on providing customers with outage preparation information (see Attachment C) and resources including battery back-up LED lights and cell phone chargers. In 2021 3,679 kits were distributed. These kits were provided at food banks, senior meal sites, through Meals On Wheels, and to regional health organizations.[10]  Learning from the Spokane County experience, similar efforts will be replicated in communities throughout the Company's service area, with a particular focus in areas with the highest wildfire risk.

f.  **What information will the utility provide customers about the wildfire risk mitigation work it is performing? Does the utility offer programs for customers to request vegetation management work if they identify trees or vegetation that is in contact with power lines? How successful are these programs?**

As noted above, we have a variety of ways we communicate with customers about our work. We utilize our newsletters, customer emails, phone calls, social media, Avista's website and earned media with our local media outlets. When projects directly impact customers, they are notified of work happening in their area and its purpose. For example, informational postcards are sent to customers who live near grid hardening projects. We also reach out directly to customers who are eligible for vegetation management work. With our pilot project, we have reached out to customers through mail, email and phone. For work that involves outages, we communicate multiple times. For example, for a transmission project that replaces wood with steel, we sent letters to customers in the area

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[10] For more information, please see https://www.myavista.com/connect/articles/2021/12/improving-customer-and-community-resilience-during-power-outages

and followed up with phone calls (through outbound interactive voice response calls) and a series of ads in the local newspaper.

There is not a one-size-fits all approach, and we work to reach customers through many different channels.

Regarding customer-requested vegetation management work, Avista has two programs that manage customer-identified concerns relating to vegetation, the "Check Tree Program", and a new program called the "Safe Tree Program".

The Check Tree Program is a part of Avista's Distribution Vegetation Management Program. It relies on customers calling into the call center to ask for an assessment on trees that they believe pose a risk to power lines. This call from the customer generates a service request and is assigned to vegetation management staff for assessment. Once the assessment is done and a problem is identified, a line clearance crew is scheduled for trimming.

A new strategy identified in the Wildfire Resilience Plan (Attachment B) is the Safe Tree Program, also known as the Customer Choice Right Tree Right Place. This program is like the Check Tree Program in that it requires customers to drive an action regarding vegetation management. However, instead of trimming trees, the Safe Tree Program removes non-compatible vegetation (i.e., likely to grow into powerlines), cleaning up all the debris, and then replacing the old tree with a low-growing species of the customer's choice, all at no cost to the customer. These low growing species mature to a height that will not interfere with overhead powerlines and should not require ongoing trimming to keep them from becoming hazards to powerlines.

As discussed earlier, Avista is conducting a small pilot project in Kellogg, Idaho, to learn more about the interest, cost, and feasibility of large-scale implementation of the Safe Tree Program in the highest fire risk areas. Long-term goals include creating an online, self-service platform where customers can request an appointment with Avista-contracted tree crews and schedule the work needed at their convenience. The Company believes that offering more choices to remove problem vegetation will encourage customers to ally with the Company in protecting their property and that of their neighbors against the threat of wildfire. Preliminary feedback indicates that customers are pleased with this new program and are already signing up.

9. **What operational tools are in the utility's toolkit for responding to wildfire events or potential triggers of wildfire events this season, such as heatwaves or high wind events?**

Avista uses a dynamic forecasting tool that incorporates the National Weather Service 7-day weather forecast, allowing the opportunity to make decisions on the potential outcomes of risk that may be present during that forecasted period. Though there is correlation between fire risk and wind speed, there does not appear to be a direct relationship between extreme high temperatures and fire risk. Often these high temperature days have minimal wind speeds. Because

of this relationship, Avista puts more focus on relative humidity rather than temperature when determining fire risk, as relative humidity is a descriptor of how moisture is exchanging with the environment. Avista has not experienced large numbers of uncontrolled outages based on temperature alone.

**a. Do these tools include public safety power shutoffs or other depowering/de-energization mechanisms such as more sensitive system settings that could trigger a power outage? Please explain any programs that result in customers' power being shut-off proactively or reactively due to fire risk.**

During fire season, the Company transitions into the mode of limiting the number of circuit recloses. This operating mode, which we call Dry Land Mode (DLM), involves both identifying electric circuits that operate in elevated fire threat areas and the reconfiguration of protection systems to allow these field devices to be remotely adjusted for wildfire threat based on the fire risk potential. These strategies reduce the potential for spark events and the risk of fire. The Wildfire Plan proposes an updated Dry Land Mode with four levels of reclosing operations:

**<u>Graph No. 1 – Dry Land Mode Operating Levels</u>**



1) *Non-Fire Season Mode* – Normal operations where circuit breakers automatically reclose multiple times before locking out, with a focus on reliability.

2) *Base Level Dry Land Mode* – If a circuit is set to this protection level, when it trips it waits a predetermined length of time then recloses to test the circuit. If it tests bad

the second time it will stay off until manually inspected before being placed back in service.

3) *Elevated Risk: Dry Land Mode 2* – A circuit placed at this protection level it will stay off if it trips and tests bad. There is no time delay. This allows the circuit to close back in for temporary faults but de-energizes for permanent faults by tripping off the breaker. This has also been called "Fire 2 Shot."

4) *Extreme Risk: Dry Land Mode 1* – Circuits considered in extreme danger are configured for instantaneous tripping and non-reclosing so if the circuit trips, it does not test or try to reclose. It stays off until it is inspected and released back into service. This extreme protection level will only be used for severe weather conditions. This level of protection operates at significantly reduced energy levels and once the circuit trips due to a fault condition, mitigates the impact of future system faults due to the circuit being in an off status until the circuit is patrolled and re-energized. This can significantly impact customer reliability, as it may take several hours to patrol the line and mitigate any issues found. This has also been called "Fire 1 Shot."

For catastrophic weather events exceeding Dry Land Mode 1, the Company will selectively implement de-energization on circuits or sections of circuits as a measure of last resort in coordination with our community partners and first responders. This will only be done in a situation where there are no customer impacts **or** if no other mitigation actions are available, and when it is clear that the safety benefits exceed the impact of shutting off power to customers. We have implemented de-energization at the request of first responders as a course of business throughout our history. In 2021, we responded to eight separate fire incidents to de-energize distribution facilities to protect firefighters, and de-energized two transmission lines at the request of fire commanders.

i. **What are the criteria, triggering events, provisions, or thresholds that would result in a utility implementing any depowering or de-energization mechanism?**

Avista is using existing and historic data to evaluate multiple actual fire events that occurred in our area, as well as other areas, to better understand how risk changes with varying conditions and how the Company might define the definitive break point for de-energizing for fire protection. A logarithmic model is being used that details risk in a manner that limits most major events to a small subset of practicable number values in the index. The Company has existing threshold values for Base Dry Land Mode (nominal operations), Dry Land Mode 2 (elevated), and Dry Land Mode 1 (extreme) and is working to quantify the point of separation between moderate outage and fire growth potential to extreme potential within the bounds of modeling capabilities. Events such as the 1991 Fire Storm are being re-examined as a way of "back-casting" the potential impacts of de-energizing distribution facilities.

Historically the Company has selectively implemented de-energization on circuits or sections of circuits as a measure of last resort in coordination with community

partners and first responders. Currently this will only be done in a situation where there are no customer impacts or if no other mitigation actions are available, and when the safety benefits exceed the impact of shutting off power to customers. Implementing a PSPS is not just a technical decision but must be an evolution that takes place in conjunction with our communities. Avista is continuing to explore and understand the implications of a PSPS strategy, including identifying critical loads as impacted by such an event, ramifications on communities, and appropriate levels of community support, among other issues. Historically the Company has de-energized lines. This is based on a spectrum of criteria, primarily impacts to customer service and safety or requested by fire commanders, but it is a measure of last resort.

ii. **What communication protocols are in place to notify and prepare customers, first responders, and state and federal emergency operations personnel of such an event? In particular, what are the utility's plans for communicating with medical and life support customers, vulnerable and low-income customers, and customers with limited English proficiency or other language or accessibility needs?**
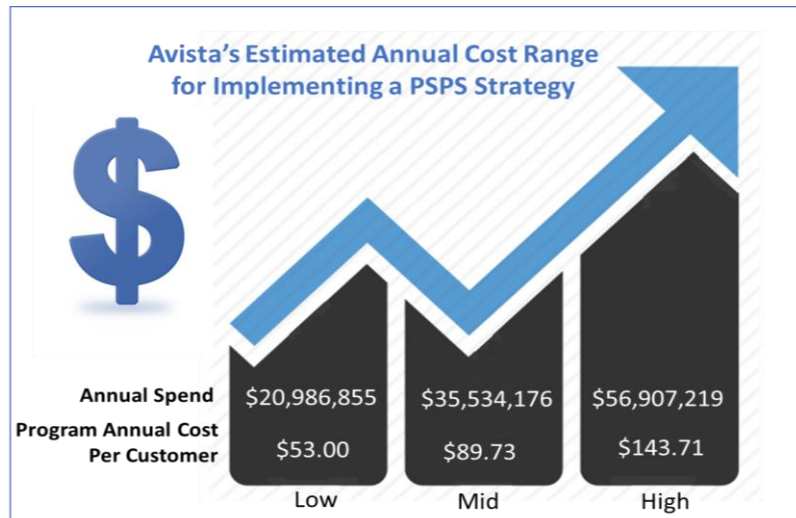
While we currently do not have PSPS as part of our strategy, we do have communications protocols in place to notify customers of specific energy-related events using outreach similar to other weather-related events such as storms. We contact customers via email, phone, notices on our website and potentially with news releases to local media. Customers who are likely to be impacted are notified directly. To identify requirements associated with communicating with vulnerable customers, in August of 2021 the Company began working with Spokane County organizations including emergency services, social service agencies and community-based organizations to gain a better understanding of how to support vulnerable populations during emergency events. This includes developing a coordinated response with these external providers. The knowledge and experience gained from the Spokane County collaboration will be used to develop an approach to assisting and supporting vulnerable customers across the service territory.

iii. **If the utility's wildfire mitigation plan includes public safety power shutoffs, what resources does the utility provide to impacted customers to mitigate customer impacts during a shutoff event?**

Though the Company does not have a formal PSPS plan in place, we are committed to identifying and supporting customers impacted by energy-related events. In 2021 Avista began working with community partners to distribute preparedness kits to vulnerable customers (as identified by external service providers) across the service territory. These kits contain battery back-up powered LED lights, preparedness information (see Attachment C) and other items to help customers in case of outage. The Company also put together a group of emergency response organizations in the Spokane area to provide support to customers during energy-related events.

Avista is currently addressing de-energization through Dry Land Mode operations as described in Question 9. The costs of implementing a PSPS plan are significant. In 2021, Avista analyzed the potential costs and impacts of implementing a "California-Style" PSPS program. The costs shown in Graph No. 1 are based on Avista's PSPS Team research and analysis, costs from the California utilities, as well as on Avista's current customer count, and <u>do not include</u> grid hardening or wildfire-related vegetation management costs in order to represent PSPS-only program costs more accurately. Included in PSPS costs are risk and mapping, situational awareness, data governance (primarily legal requirements), resource allocation or re-allocation, emergency planning, stakeholder and community engagement, and customer services to be provided by Avista.

**Graph No. 2 – PSPS Implementation Costs**



Avista's Estimated Annual Cost Range for Implementing a PSPS Strategy

| | Low | Mid | High |
|---|---|---|---|
| Annual Spend | $20,986,855 | $35,534,176 | $56,907,219 |
| Program Annual Cost Per Customer | $53.00 | $89.73 | $143.71 |

b. **If depowering in any form is not part of a utility's toolkit, what provisions are in place as an alternative, specifically in circumstance where high winds and dry conditions are predicted? How does the utility plan to communicate these provisions with customers, including medical and life support customers, vulnerable and low-income customers, and customers with limited English proficiency or other language or accessibility needs?**

We have a variety of ways we communicate with customers. With issues such as outages that directly impact customers, we provide direct contact using newsletters, customer emails, phone calls, social media, Avista's website and earned media with our local media outlets. We are engaging with community leaders and enhancing community outreach efforts. As described in Question 8 Part e, the Company is developing specific ways of addressing communications with vulnerable customers with the assistance of external experts such as emergency services, social service agencies and community-

based organizations. This work will help the Company identify these populations, the most effective means of communicating with them, what support they may need during an event, and how we can coordinate with service providers and others to ensure our customers receive the information and resources needed.

Avista believes in the power of community outreach and partnering with our customers and community leaders to both identify vulnerable customers and support the needs of these and all customers impacted by energy events. Enhancing community outreach efforts, engaging with community leaders, and aligning wildfire efforts with potential impacts to vulnerable populations are critical components of the outreach with Spokane County – efforts that will be honed and improved so they can be implemented across our service territory for all Avista-served communities.

If you have any questions regarding this filing, you can contact me at 509-495-8601 or liz.andrews@avistacorp.com.

Sincerely,

*/S/Elizabeth Andrews*

Elizabeth Andrews
Sr. Manager of Revenue Requirements