DAVID J. MEYER
VICE PRESIDENT AND CHIEF COUNSEL FOR
     REGULATORY & GOVERNMENTAL AFFAIRS
AVISTA CORPORATION
P.O. BOX 3727
1411 EAST MISSION AVENUE
SPOKANE, WASHINGTON 99220-3727
TELEPHONE: (509) 495-4316
FACSIMILE: (509) 495-8851
DAVID.MEYER@AVISTACORP.COM

BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION	)	CASE NO. AVU-E-23-01
OF AVISTA CORPORATION FOR THE	)	
AUTHORITY TO INCREASE ITS RATES	)	
AND CHARGES FOR ELECTRIC AND	)	DIRECT TESTIMONY
NATURAL GAS SERVICE TO ELECTRIC	)	OF
AND NATURAL GAS CUSTOMERS IN THE	)	DAVID R. HOWELL
STATE OF IDAHO	)	
	)	

FOR AVISTA CORPORATION

(ELECTRIC ONLY)

I. **INTRODUCTION**

Q.   Please state your name, employer and business address.

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.   Would you briefly describe your educational background and professional

experience?

A.   Yes. I graduated from Washington State University in 1992 with a B.S. in

Mechanical Engineering and earned my EMBA from the University of Washington in 2012.

I am a registered professional engineer in the State of Washington for both electrical and

mechanical engineering. I joined the Company in 2005 after spending five years with

TransCanada-GTN. Between 2005 and 2015, I held various positions at Avista supporting

both natural gas and electric operations, including Gas Design Engineer, Gas Design Manager,

Gas Compliance Manager, Operations Manager, and Director of Gas Delivery. In 2015, I

transitioned to support the electric business as the Director of Electrical Engineering. I became

the Director of Electric Operations in 2016, where my primary responsibilities include the

management and oversight of Avista's 13 operating districts, responsibility for construction

services and design, as well as the Asset Maintenance and Wildfire teams.

Q.   What is the scope of your testimony in this proceeding?

A.   My testimony and exhibits 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. Avista's Wildfire Plan reflects the Company's

130-year operating history combined with recent efforts to quantify and respond to the financial,

1   safety-related, and service reliability risks associated with wildfires. While I discuss this plan

2   in detail within my testimony and exhibits, Company witness Ms. Andrews sponsors the O&M

3   expense adjustment associated with the Company's Wildfire Plan and reflected in the Wildfire

4   balancing account, and Company witness Ms. Benjamin includes any capital additions that

5   transfer to plant prior to or during the Two-Year Rate Plan as proposed by the Company, within

6   her capital adjustments.

7   A table of contents for my testimony is as follows:

21

22   **Q.   Are you sponsoring exhibits in this proceeding?**

23   A.   Yes. I am sponsoring Exhibit No. 10, Schedule 1 with the following Schedule:

24   •   Wildfire Resiliency Plan, updated in January 2023.

25

26

Howell, Di   2
Avista Corporation

1 **II. OVERVIEW OF AVISTA'S WILDFIRE RESILIENCY PLAN**

2 **Q.   What are the stated goals of the Wildfire Plan?**

3   A.   Avista responded to the increasing threat of wildfires within our service

4 territory with a robust and well-rounded Wildfire Plan focused on reducing the likelihood of

5 a wildfire caused by Avista's Idaho and Washington electric operations, protecting the safety

6 of our employees and customers, and preparing ourselves, our system, and external partners

7 for a wildfire event. The goals of the Wildfire Resiliency Plan are to:

8   • Support safe and reliable operations by protecting physical assets, safeguarding
9   property, and protecting human lives against the threat of wildland fires through
10   the implementation of Plan programs and Company operations.
11
12   • Prepare and train for episodic wildfire events, ensure emergency preparedness, and
13   align operating practices with fire threat conditions.
14
15   • Protect Avista's energy delivery infrastructure and mitigate the probability and
16   consequence of direct financial and liability costs associated with large scale fire
17   events.
18
19   • Reduce the risk of wildfire from the interaction of Avista's energy delivery system
20   and the environment, as well as the impacts of wildfire to Avista's system.
21
22 These recommendations represent Avista's ongoing Wildfire Plan. Plan recommendations

23 also reflect cost prudency and were adopted based on their ability to leverage existing asset

24 programs and operating practices, promote public safety, and mitigate financial risks.

25   **Q.   Would you please provide a short history of the development of the Plan,**

26 **including those participating in its development, and explain how it has evolved over**

27 **time?**

28   A.   Yes. Avista's first Wildfire Resiliency Plan was first published in May of 2020,

29 the culmination of 18 months of development starting with project chartering and goal setting,

30 risk tabletop analysis, risk assessment, cost forecasting, and various stages of internal review

1   and approval. This was combined with feedback and input from various internal and external

2   sources, including fire protection agencies, peer utilities, industry manufacturers, community

3   leaders, and regulators. Since that time, we have been working to implement elements of the

4   Plan. The Plan is comprised of four major categories. The first category is grid hardening to

5   reduce spark ignition events and make the system more resilient. Second is enhanced risk-

6   based vegetation management practices to reduce vegetation-related risk. Third involves

7   situational awareness, primarily grid control and monitoring technology as well as use of Dry

8   Land Mode. Fourth is emergency operations and planning, which includes partnerships and

9   operational tactics.

10   The Plan was developed as a risk-based approach to mitigating wildfires. It was

11   developed in collaboration with internal subject matter experts and Northwest industry peers

12   to ensure that the Plan included current industry best practices and was aligned where

13   appropriate with peer plans, yet was specifically designed to address the unique geographic

14   risks and operating conditions of Avista's service territory.

15   Revisiting the prior history, in May and June of 2019, a series of risk workshops were

16   held to provide baseline information and risk matrices for several potential strategies. Avista

17   drew from subject matter experts across the Company, including asset management, enterprise

18   risk, engineering, line operations, system operations, regulatory compliance, and other groups.

19   External input to Avista's plan was provided through the Pacific Northwest Wildfire

20   Working Group, a peer group of utilities from the Northwest that came together to specifically

21   address the evolving threat of wildfire, to better understand the risk, share best practices, and

22   ensure that the administration of wildfire plans is consistent where appropriate, as well as

23   engagement with the utilities in California who have been working on mitigating fire risk for

1   over a decade.

2   Avista's Wildfire effort focuses on the "Plan-Do-Check-Adjust" methodology, thus

3   we are continually monitoring the impacts of our programs and the work happening in the

4   industry, as well as seeking the guidance of our partners. We are continuously searching for

5   areas of improvement and refinement, which is evidenced by the fact that our Fire Weather

6   Dashboard risk model has been upgraded to new levels of sophistication, we have developed

7   strong and invaluable partnerships with first responders and fire professionals, and we are

8   establishing data-driven means of determining the most cost-effective grid hardening and

9   vegetation management strategies. These are examples which are defined in more detail

10   throughout this testimony.

11   **Q.   Please describe the impact of wildfires and wildfire planning specific to**

12   **Avista's electric <u>transmission</u> operations.**

13   A.   Avista operates and manages 2,270 miles of transmission in portions of

14   western Montana, northern Idaho, and eastern Washington. In 2006, Avista adopted tubular

15   steel poles as the standard for 115 kV and 230 kV powerlines. Since that time, Avista has

16   worked to replace its aging wooden structures with steel, and all new construction is

17   exclusively steel. The combination of system hardening through wood to steel conversion and

18   fire-resistant pole wraps in addition to well-maintained rights-of-way have increased the fire

19   resiliency of our transmission system. In fact, transmission fire ignition events are now

20   relatively rare. From 2009 to 2022 there were 5 individual transmission incidents classified

21   as spark events (about 0.3% of the total sustained transmission outages).[1]

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[1] These events were caused by an abandoned osprey nest catching on fire, two faulty switches, a burned-up jumper, and damage from a nearby fire.

1   Conversely, the impact of fire on transmission structures can be significant when it

2   does happen. Aside from the potential for extended outages, the replacement cost of a single

3   transmission structure ranges from $7,500 to over $100,000, and damages to conductor can

4   escalate into the millions of dollars.[2]

5   **Q.   Please describe the impact of wildfires and wildfire planning specific to**

6   **Avista's electric <u>distribution</u> operations.**

7   A.   The vast majority of electric outages occur on the distribution system, but the

8   impact to customers is typically restricted by line-fuse action (limiting outages to an average

9   of 51 customers typically).[3] To contrast this situation, transmission outages are infrequent

10   (low probability) but can impact many more customers (the average number of customers

11   affected by a transmission outage is 615).[4] However, from a fire prevention standpoint, the

12   distribution system is the ignition source for most utility-related fires. Data from Avista's

13   Outage Management System (OMS) from 2009 to 2022 indicates that annually about 110

14   spark events have been associated with overhead distribution lines, about 1.5% of all

15   distribution outages. Many of these do not result in fire and if they do, in almost all cases these

16   fires are naturally extinguished or were extinguished by first responders, including Avista line

17   servicemen. However, in the current risk environment, the distribution system warrants

18   enhanced focus with respect to fire ignition, and this risk is especially acute in the wildland-

19   urban interface (WUI) areas.

20   Fire ignition sources include tree contacts with powerlines, but also include animal

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[2] As an example, fire damage to the Company's Chelan-Stratford transmission line as a result of the Cold Springs Canyon/Pearl Hill fire in September 2020 resulted in capital replacement costs of over $8.5 million. This fire was caused by a campfire on private property that had not been properly extinguished. https://wildfirepartners.org/cold-springs-fire/
[3] Based on Outage Management System data for 2009 to 2022.
[4] Ibid.

1   contacts, equipment failure, and electrical pole fires. Since 2009 there were 127 tree-related

2   outages related to spark events on the distribution system, with about 45 occurring during fire

3   season (July through September). Since 2009 there were 507 reported distribution pole fires

4   during fire season.[5] We are implementing mitigative measures through our Wildfire

5   Resiliency program to reduce these events over time.

6   **Q.**   **Does the Wildfire Plan enhance and accelerate existing infrastructure**

7   **programs?**

8   A.   The Plan leverages existing asset programs and operating practices, building

9   upon these where possible. Many of the historical asset maintenance programs already have

10   benefits directly related to reducing the risk of fire or in making our system more resilient,

11   such as the existing Vegetation Management Program, as well as steel transmission pole

12   replacements, which have been a Company practice since 2006. The Wildfire Plan added

13   additional funding and created a focus for these types of programs specifically related to high

14   fire risk areas. Other programs suggested by the Plan are new to Avista, including digital data

15   collection (Light Detection and Ranging - "LiDAR") and satellite imaging to better

16   understand vegetation risk, cross-training with external fire professionals, and the Fire

17   Weather Dashboard, described in more detail further in this testimony. All the Wildfire

18   programs, new or enhanced, work in concert to provide a robust, prudent, and sensible

19   approach to this critical issue.

20   **Q.**   **Finally, would you please provide the key highlights from Sections III**

21   **through XII of your testimony below?**

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[5] Ibid.

1   A.   Yes. Provided below are several of the key highlights of my testimony, with

2   more details included within the body of this testimony:

3   • Avista is responding to increasing wildfire risk, especially in the Western U.S., with

4   a robust, thoughtful, comprehensive Plan that includes programs and strategies we

5   believe will help reduce wildfire risk for our customers and infrastructure, and that

6   are in line with industry standards and practices.

7   • The overall cost of the Company's Wildfire Plan, as updated in 2023 and based on

8   lessons learned and needs over the 10-Year life of the Wildfire Plan (2020-2029),

9   reflects $285.9 million in capital investment and $126.4 million in O&M expense

10   on an electric system basis. The Plan capital and O&M costs are focused in the

11   following areas Grid Hardening, Enhanced Vegetation Management, Situational

12   awareness, and Operations and Emergency Response.

13   • Through the Wildfire Plan, Avista has enhanced existing vegetation measures to

14   provide 100% risk tree inspection of non-urban areas of our system and

15   incorporated the use of new technologies including LiDAR and satellite imaging to

16   both provide additional detailed data on vegetation issues and encroachments, and

17   to help us focus mitigation efforts where they will provide the most risk reduction

18   value.

19   • The Wildfire Plan has also enhanced existing programs at Avista such as the Right

20   Tree Right Place Program and Dry Land Mode operations and has added new

21   programs and technologies including the Fire Weather Dashboard and Wildland

22   Urban Interface map.

23   • The Plan includes the use of metrics to help us determine the impacts of Plan

1   programs and strategies over time.

2   • A key component of our success lies in communication and outreach for internal

3   and external interested parties, specifically customers, and this is a focus of the

4   Plan.

5   • We have faced challenges since the Plan's inception in 2020. In this testimony we

6   review some of the issues faced in 2022, what we learned from them, and plans for

7   adapting and improving the Plan as a result, such as the four wildfires that impacted

8   our system (Express Fire in Idaho, and Lind, Wagner Road and Cannon fires in

9   Washington). We also learned that scaling the vegetation management risk tree

10   program to complete 100% risk inspection annually is a much bigger and more

11   expensive proposition than originally anticipated – with the number of risk trees

12   determined to be nearly double earlier estimates. These lessons learned and Avista's

13   plans for adapting and improving its Wildfire Plan are described in the 2023

14   Wildfire Plan provided as Exhibit No. 10, Schedule 1.

15

16   **III. WILDFIRE RESILIENCY PLAN**

17   **Q.   What are the current capital and expense cost estimates for the 10-Year**

18   **Wildfire plan?**

19   A.   Revised in January 2023, the updated system-wide Wildfire Resiliency Plan

20   program costs include capital investment of approximately $285.9 million from 2020 to 2029

21   with corollary operating expenses of $126.4 million (all electric system numbers).[6] Included

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[6] All operating expenses provided reflect incremental amounts <u>above existing expense levels</u> and are specific to
the Wildfire Resiliency Plan.

1   in Table No. 1 below are the system (Idaho and Washington electric) annual capital additions

2   and O&M expenses (actual and expected) for the 10-Year period 2020 – 2029.

3   **Table No. 1 –Wildfire Annual Capital Investment & Operating Expense (System)**

4

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	10 Yr. Total
Capital	$3,420,946	$19,375,860	$26,065,682	$27,000,000	$33,750,000	$35,250,000	$35,250,000	$35,250,000	$35,250,000	$35,250,000	$285,862,488
O&M	$2,429,878	$7,602,373	$17,272,726	$17,690,000	$16,536,800	$15,276,188	$14,143,985	$12,877,431	$11,765,047	$10,846,505	$126,440,932

7   These total capital investments and expenses of the Wildfire Plan will be directly assigned or

8   allocated to Avista's Idaho and Washington jurisdictions over time as the costs occur.

9   The following Illustration No. 1 illustrates the total estimated capital and operating

10   expense, on a per year basis (Washington and Idaho electric) from 2020 to 2029.

11   **Illustration No. 1 – Annual Wildfire Resiliency Plan Costs (System)**
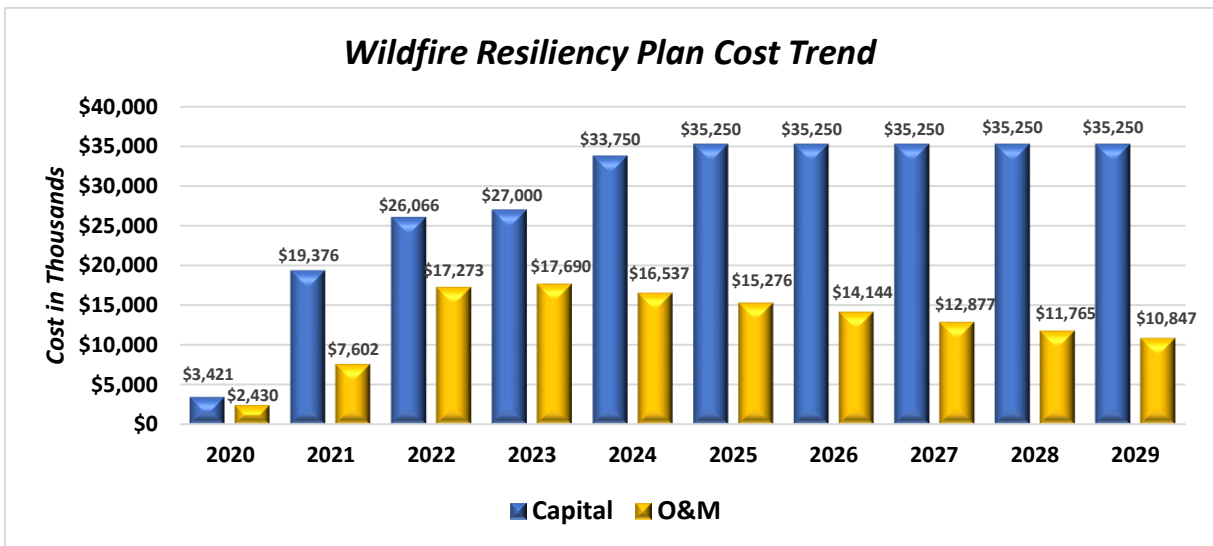
20   As shown in Illustration No. 1 above, capital levels are expected to levelize by 2025

21   and remain so during the balance of the ten-year period. Operating expense levels, however,

22   are expected to peak in 2023 and then gradually decline as subsequent year inspections reveal

23   fewer risk/hazard trees. It is important to note that the 100% system inspections in 2022

1   revealed more than twice the number of risk trees anticipated and resulted in nearly 19,000

2   tree removals this year alone, a new record for Avista. It is also noteworthy, that while capital

3   plan elements are projected to decline significantly after the Wildfire Plan 10-year program,

4   the majority of operating expense items are on-going and are generally related to risk-based

5   vegetation management which will continue after the Plan ends.

6   The individual plan recommendations that result in these costs estimates are provided

7   in the updated 2023 Wildfire Plan. By far the single largest capital investment is associated

8   with electric distribution grid hardening. This accounts for $210.6 million invested in

9   distribution systems[7] located in elevated fire risk areas, with another $37.6 million invested

10   to convert wood poles to steel on the transmission system. These two plan elements alone

11   account for approximately 87% of total capital spend over the ten-year period.

12   For operating expense, transmission wood pole wraps, transmission and distribution

13   digital data collection, fuel reduction partnerships, and the public Safe Tree customer initiative

14   account for nearly $24 million (19% of the total Wildfire operations expense budget), and the

15   Risk Tree Program has estimated expenditures of $95 million (about 75% of the total Wildfire

16   expense budget) over the same 10-year period.

17   **Q.   What are the specific costs Avista is seeking to recover in this general rate**

18   **case over the proposed Two-Year Rate Plan?**

19   A.   As discussed by Ms. Andrews, specific costs proposed by Avista in this general

20   rate case reflect the expected costs to be charged to Idaho electric operations over the

21   Company's proposed Two-Year Rate Plan. While Company witness Ms. Schultz sponsors

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[7] This includes Grid Hardening direct and accelerated Wood Pole Management costs in support of Wildfire Plan Grid Hardening efforts.

1   the wildfire deferral amortization adjustment and incorporates the incremental costs

2   associated with the Company's Wildfire Plan within her Electric Pro Forma Study for the

3   Two-Year Rate Plan, and witness Ms. Benjamin sponsors the capital additions adjustments

4   pro formed by the Company, Ms. Andrews sponsors the Wildfire Expense Adjustment and

5   discusses the Wildfire Balancing Account proposed baseline update for the Two-Year Rate

6   Plan and the overall costs in this case associated with the Wildfire Plan.

7   Specifically, Ms. Andrews explains within her direct testimony, that the Company has

8   pro formed a level of <u>Idaho wildfire transmission and distribution O&M expense totaling

9    $4,637,000</u>[8 / 9] annually for the Two-Year Rate Plan, and that this amount is the Company's

10   proposed Wildfire Expense Balancing Account <u>baseline</u> to be utilized over the Two-Year Rate

11   Plan.[10]

12   Ms. Andrews also explains that the pro forms capital additions adjustments (sponsored

13   by Ms. Benjamin), includes capital additions above test period levels related to Wildfire Plan

14   investment, reflecting Idaho's share of Wildfire Plan transmission and distribution <u>net capital</u>

15   <u>additions</u> of projects transferring to plant between July 1, 2022, and August 31, 2025. These

16   additions result in the overall increase in Idaho electric rate base (net of A/D and ADFIT) of

17   $15.8 million in RY1 and $9.2 million for RY2, or $24.9 million over the Two-Year Rate

18   Plan. Finally, Ms. Andrews provides detail on the Wildfire deferred expense incurred by the

---

[8] The Pro Forma level of wildfire expense of $4.6 million reflects a reduction of $1.86 million from test period levels (twelve-months-ending 06.30.2022) of $5.3 million.

[9] After completion of the Company's revenue requirement in this proceeding, and completion of calendar year 2022 Wildfire Plan efforts, the Wildfire Plan capital additions and O&M expense for 2023 – 2029 were revised to reflect lessons learned in 2022. Specifically, Wildfire O&M expenses were revised to $17.7 million, $16.5 million and $15.3 million respectively, for the periods 2023, 2024 and 2025. Capital additions planned between 2022-2025 were also adjusted. As discussed by Ms. Andrews, the Company will <u>update</u> its requested capital additions and O&M expense level included for RY1 for wildfire expenses and its proposed baseline during the pendency of this general rate case, to reflect the January 2023 revised Wildfire Plan, capital additions and expense levels.

[10] The $4.6 million baseline would remain in effect until the baseline is revised in a future general rate case.

1 Company for Idaho operations from July 1, 2020 through September 30, 2022 of $8.2 million,

2 and the proposed two-year amortization to recover these deferred expenses of $4.1 million

3 annually from September 1, 2023 through August 31, 2025.

4   In summary, reflecting each of these wildfire costs, therefore, result in an overall

5 increase to the Idaho electric revenue requirement included in this case totaling approximately

6 $9.9 million, or $8.8 million and $1.1 million in Rate Year 1 and Rate Year 2, respectively,

7 and an increase in net rate base, as noted above, of $15.8 million in Rate Year 1 and $9.2

8 million in Rate Year 2. Approval of these proposed incremental costs is an important element

9 of the Company's wildfire program and helps support the level of wildfire mitigation efforts

10 proposed in the Company's Wildfire Plan.

11 **Q.   What is the risk exposure to the Company without the long-term Wildfire**

12 **Plan proposed by the Company?**

13   A.   The risk of large wildfire events is increasing across the western United States.

14 Recent fire events in Avista's own service territories of Idaho, Washington and Oregon, as

15 well as major wildfire activities in other states such as California, illustrate that utility

16 operating risk is increasing related to wildfires. Reducing the risk of wildfires is critical for

17 customers, communities, investors, and the regional economy. Avista has taken a proactive

18 approach for many years to manage wildfire risks and impacts, and through its Wildfire Plan,

19 the Company has identified additional wildfire defenses for implementation. The goals,

20 strategies, and tactics set forth in this plan reflect a quantitative view of risk. Additional

21 research, conversation and analysis with Avista's operating staff and steering group provided

22 critical qualitative and contextual information that also shaped the recommendations. This

23 combination of quantitative and qualitative analysis ensures the recommendations included in

1   the Company's Wildfire Plan are robust, well-rounded, and thoughtful, and that they align

2   with the plan goals and are appropriate.

3   Although not a precise financial estimate, updated 2022 wildfire risk analysis indicate

4   a 10-year inherent electric system financial risk exposure of utility involved wildfires ranges

5   from $490 million (optimistic) and $4.7 billion (pessimistic) of accumulated risks associated

6   with all (28) plan recommendations previously discussed in the 2022 Wildfire Plan.

7   **Q.**   **Are there potential operating and maintenance expense offsets (i.e., direct**

8   **benefits) expected as a result of the Company's Wildfire Plan?**

9   A.   The goal of wildfire resiliency is to reduce the overall risk associated with

10   wildfires. In short, the benefits of this plan are largely measured in terms of risk reduction for

11   all parties involved as well as cost avoidance. The Company, however, recognizes a potential

12   for costs savings and cost shifts from operating and maintenance expense towards capital

13   investment. The overall impact of cost savings and cost shifts will not be well understood until

14   the plan is fully operational and longer-term performance data can be obtained and analyzed.

15   However, one of the objectives of this plan is to reduce the number of equipment failures and

16   tree-related outages and by doing so, avoid emergency response and customer outage costs.

17   The following Table No. 2 lists a number of potential cost savings opportunities

18   associated with the Wildfire Resiliency Plan.

1   **Table No. 2 – Potential Cost Savings Opportunities**

Plan Element	Benefit	Cost Savings/Shift
Annual Risk Tree and Safe Tree Programs	Improved system performance (fewer outages), reduction in spark events, opportunity to work directly with customers to remove "problem" trees, increasing their level of safety and reliability.	Reduced spending on emergency response and unplanned repairs, reduced vegetation management costs by removing trees that require repetitive pruning.
Digital Data Collection	Automates data gathering process for vegetation, provides detailed structure condition inspection data, accuracy in identifying dead, dying, or diseased trees which allows targeting areas for veg. work, and provides detailed data for analytical work.	Reduces field inspection requirements, enables computerized quality analysis, tracking, and control.
Grid Hardening	Improved system performance (fewer outages), reduction in spark events, adding resiliency to the system to help maintain customer reliability and to reduce expenditures for repair/replacement due to wildfire impacts.	Reduced spending on emergency response and unplanned repairs, reduced vegetation management costs by removing trees that require repetitive pruning.
Situational Awareness (Communications & Control Systems)	Enables remotely monitoring, operating, and control equipment, especially during high fire risk conditions.	Reduces service-related truck rolls.
Operations & Emergency Response	Better prepare and equip first responders to help make it safe for them to work around power equipment during fires, prepare Avista employees with fire training, enable professional firefighters to aid Avista in responding to potential spark events.	Reduces risk of injury or accident, sending fire professionals to a transmission outage may prevent a fire from spreading.

12   It should also be noted that this portrayal of program-level spend estimates does not

13   differentiate between incremental and embedded cost elements. However, the bulk of Plan

14   elements including enhanced risk-based vegetation management and grid hardening, which

15   represent additional activities and incremental costs, are discussed below.

16   **Q.   How will any offsetting benefits be captured in the form of operating and**

17   **maintenance savings?**

18   A.   As discussed by Ms. Andrews, the operation of the balancing account for O&M

19   costs will be net of cost savings, thereby capturing over time any embedded cost savings.

20

21   **IV. GRID HARDENING**

22   **Q.   Turning to elements of the Plan, please describe your Grid Hardening**

23   **programs in more detail.**

1   A.   Grid Hardening is the single largest capital investment in the Wildfire Plan.

2   Grid hardening programs are key to protecting both our customers and our electric

3   transmission and distribution systems from wildfire risk. This work includes replacing wood

4   crossarms with fiberglass (wood crossarms against wood poles create electrical tracking that

5   can cause pole fires), replacing small and outdated (such as small copper) conductor, installing

6   wildlife guards (animals cause about 8% of Avista's outages), placing steel distribution poles

7   at critical points (sharp corners, river crossings, etc.), replacing obsolete equipment & devices,

8   and underground conversion when financially viable. Distribution lines experience line faults

9   at a rate of over 56 to 1 versus transmission lines, so reducing equipment failures mitigates

10   the risk of fire starts by these lines. The Wildfire Plan system upgrades are focused in the

11   highest fire risk areas, where fuels combine with housing/population to increase the risk level

12   of fires. Grid Hardening comprises about 87% of the total wildfire capital expenditures over

13   the ten-year period of the Plan. It includes elements designed to reduce the number of spark

14   ignition events and to make our system more resilient to the impacts of wildfire. Grid

15   Hardening comprises the programs described below.

16   **Distribution Grid Hardening: Infrastructure Upgrades**

17   This includes replacing aging and deteriorated poles, replacing wood crossarms with

18   fiberglass,[11] changing out obsolete copper wire with more resilient modern steel reinforced

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[11] In the early 2000s Avista, like many within the industry, began installing fiberglass crossarms in new construction and replacing wood crossarms with fiberglass. This virtually eliminates fires on poles, as the wood against wood of the old structures allowed electrical tracking under some common weather conditions, creating spark events. Source: John Lauletta, "The Industry's Most Definitive Pole Fire Fact Sheet," https://www.exacterinc.com/resources/uploaded/Brochures/Exacter%20Pole%20Fire%20Fact%20Sheet%20Final.pdf In addition, these crossarms are inherently self-extinguishing so perform well in fire situations. Source: Megan Headley, "Utilities Ready to Invest in FRP Solutions," March 5, 2020, http://compositesmanufacturingmagazine.com/2020/03/utilities-ready-to-invest-in-frp-solutions/ Avista has never experienced a pole fire with a fiberglass crossarm.

1   aluminum wire, installation of wildlife guards to reduce animal-related events, eliminating

2   uninsulated open wire secondary conductors, installing wedge connected stirrups[12] to provide

3   protection and strength at hot tap connection points, and undergrounding conductor when

4   cost-justified. The Grid Hardening program existed at Avista before the Wildfire Plan but was

5   condition-based and aligned with reliability objectives. The Wildfire Plan's Distribution Grid

6   Hardening program is focused on feeders specifically located in high fire threat districts and

7   is targeted primarily on safety objectives and reducing the risk of fire starts.

8   **Steel Pole Conversion**

9   Transmission lines are particularly vulnerable to wildland fires. Avista has

10 systematically replaced wood transmission poles and structures with steel since 2006,

11 typically for poles which were damaged or failed, or in the course of routine transmission line

12 build projects. With the Wildfire Plan, part of this replacement effort is focused on making

13 the transmission system resilient to wildfire in high fire threat areas. The Company has created

14 a prioritized list of wood structures to be replaced with steel based upon WUI zone location,

15 historical fire patterns, and high canopy areas where steel poles would be the best choice

16 (versus low-vegetation areas where fire protection may be provided with fire mesh wrap at

17 the base of the wooden pole).

18   Steel poles have the added benefit of increasing reliability, as they are less likely to

19 fail. Steel poles are stronger and less prone to wind damage. They also resist catastrophic

20 "domino effect" failure when a tension release can cause a long line of consecutive poles to

---

[12] The traditional hot line tap is attached via a bolt. Over time this type of connection can come loose and arc and spark and can melt through the conductor, allowing it to drop to the ground. The wedge connected stirrup device prevents the hot tap from being directly connected to the conductor, reducing spark potential, and the stirrup attaches in such a way that if the connection loosens and if the stirrup melts, the conductor is still intact and does not fall to the ground.

1   snap[13] as well as structural failure, which can lead to an ignition if it results in a wire down.

2   Steel poles are resistant to the impacts of fire, thus increasing resiliency.[14]

3   Steel poles that are incorporated within a steel structure that includes a steel cross arm,

4   commonly referred to as an H-Frame, provide more resistance to failure from severe weather

5   events. Avista's experience indicates that wooden crossarms are more susceptible to failure

6   than steel cross arms when they are incorporated into steel transmission structures as part of

7   the steel pole installation program.

8   **Enhancing Transmission Inspections**

9   Transmission Design Engineering has conducted annual aerial and ground inspections

10   for many years, as required by NERC regulations[15] and Avista's Transmission Maintenance

11   Inspection Plan (TMIP), which requires inspection of 100% of our transmission lines

12   annually. Current inspection programs (ground and aerial) are geared towards identifying

13   reliability risks (e.g., osprey nests, gunshot insulators, cracked crossarms, woodpecker

14   damage, etc.). The Wildfire Plan adds LiDAR inspections to the existing transmission

15   inspection methods, which can specifically identify vegetation-related risk and additional

16   issues such as corroded attachment hardware, ground profile changes, excessive sag, and

17   thermal issues.

18   **Transmission Wood Pole Fire Resistant Wrap**

19   The Company is installing fire resistant mesh wrap around the base of transmission

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[13] Snyder, Dan, "Steel Poles Are Strong, Cost-Effective Option for Distribution System," https://electricenergyonline.com/print_article.php?ID=243
[14] McQuillan, Lawrence J., Park, Hayeon Carol, Summers, Adam B, Dwyer, Katherine, "California Wildfires: Key Recommendations to Prevent Future Disasters," June 25, 2019, https://www.independent.org/publications/article.asp?id=12834
[15] NERC FAC-003-4 R6: 100% of applicable (interconnected) transmission lines must be inspected/patrolled at least once a year with no more than 18 months between inspections. https://www.nerc.com/pa/Stand/Reliability%20Standards/FAC-003-4.pdf

1   wood poles in high fire threat, low-level vegetation areas to mitigate the impact of wildfire to

2   the transmission system.   The Company has installed fire-resistant paint on wood poles in

3   low-level vegetation areas for many years and has found it to be effective in protecting our

4   structures in fire events. This paint typically lasts for about 5 years, sometimes longer under

5   the right weather conditions, but must be inspected and replaced regularly, as it cracks, chips,

6   and literally falls off the poles over time. Fire resistant mesh wrap is a new product. Avista

7   learned about this product from Southern California Edison[16] and tested it in March of 2020

8   with positive results. The mesh has been proven to be more effective than the paint for

9   approximately the same installation cost per pole, requires no maintenance, and has an

10   estimated life of over 20 years. The Company is moving away from paint after any existing

11   inventory is used up and moving strictly to fire mesh wrap for pole protection at the base of

12   the wooden poles.

13

14   **V. ENHANCED VEGETATION MANAGEMENT**

15   **Q.   Please   describe   the   Wildfire   Enhanced   Risk-Based   Vegetation**

16   **Management Program.**

17   A.   The Enhanced Risk-Based Vegetation Management Program is a major O&M

18   expenditure category in the Wildfire Plan. Avista has had a robust vegetation management

19   program in place for many years. The existing program consists of routine maintenance cycle-

20   trimming and risk-tree inspection and mitigation. In the past, these were focused on about

21   1,500 miles (20% of the system) annually. In 2020, based on the Wildfire Resiliency Plan, the

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[16] Southern California Edison "2020-2022 Wildfire Mitigation Plan," U 338-E, February 7, 2020, page 5-4, https://www.sce.com/sites/default/files/AEM/SCE%202020-2022%20Wildfire%20Mitigation%20Plan.pdf

1   existing program was separated into two programs: Routine Maintenance and Risk-Tree

2   Identification and Mitigation ("Risk-Tree"). Each of these programs have different scopes and

3   budgets in order to continue our routine cycle trimming and to give additional focus to risk-

4   trees as per the Wildfire Resiliency Plan.

5   With the additional focus on protecting lives and property from wildfire, the Wildfire

6   Plan Risk-Based Enhanced Vegetation Management Program enhanced the existing tree

7   trimming program with additional measures. Historically, tree crews removed hazard trees

8   during routine trimming activities. This year, we completed 100% inspection of distribution

9   and transmission lines, which includes 6,466 miles of inspections for the distribution system

10 and another 2,270 miles for transmission,[17] a new record for Avista. To complement and

11 supplement manual inspections, we're using annual LiDAR surveys on the transmission

12 system and annual satellite images of the distribution system in order to identify risk-trees and

13 existing or potential vegetation issues. We completed LiDAR inspections on 2,270 miles of

14 transmission, and satellite inspection on 7,675 miles of distribution in 2022. These new

15 technologies are providing a high level of detail regarding the health of vegetation across the

16 system with a goal of reducing tree contacts with powerlines, one of the most common causes

17 of outages and sparks.

18   In addition, we have added two new programs, Fuel Reduction Partnerships, and the

19 Safe Tree Program as described below.

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[17] Note that 6,466 miles is 100% of the non-urban Vegetation Management polygons rather than the entire distribution system, and 2270 miles of LiDAR inspection for transmission is a combination of ground based, helicopter, and/or LiDAR.

1   **Illustration No. 2 - Tree Related Outages[18]**

2

Avista Tree Related Outages

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4
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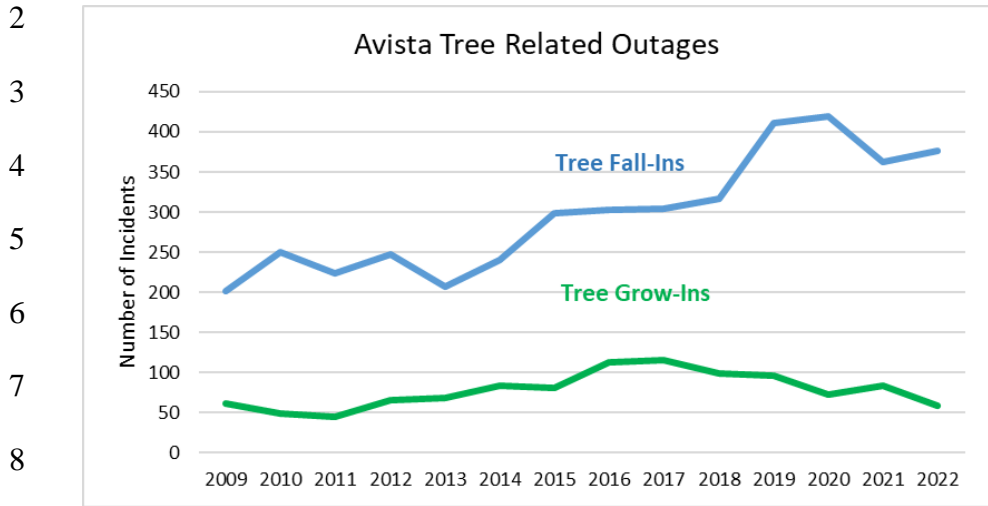
9

10   **Q.   Please discuss the use of Transmission LiDAR Surveys of High Voltage**

11   **Transmission Lines.**

12   A.   Avista inspects transmission powerlines via ground and aerial patrols each year

13   as part of our NERC compliance requirements. To enhance our vegetation inspections related

14   to wildfire risk, Avista added the supplementary layer of LiDAR imagery and data collection

15   for the transmission grid. LiDAR is a laser survey technique that is highly accurate and able

16   to identify tree health as well as tree height and distance from powerlines. It can clearly

17   identify dead, dying, or diseased trees both inside and outside our corridor rights-of-way,

18   tracks vegetation growth over time, and is very accurate in calculating fall-in risk. LiDAR

19   works well for transmission inspections because it provides a high level of detail and accuracy,

20   including the placement of the conductor in the corridor, so areas where vegetation might

21   impact the lines are identifiable. Wide transmission corridors (versus the narrow or non-

---

[18] From 2009 to 2022 our outage data indicates 1084 incidents of tree grow-ins (average of 77 per year) compared to 4091 tree fall-ins (average of 292 per year).

1 existent corridors around most distribution lines) make it easy for a helicopter or airplane to

2 fly over them to collect LiDAR data.

3   **Q.   Please describe satellite imaging and related machine learning processing**

4 **for distribution lines.**

5   A.   For the distribution system, we use a satellite-based methodology which allows

6 for a system-wide approach rather than conventional corridor collection (LiDAR) because it

7 works very efficiently for the compact trunk-and-lateral, non-linear configuration of the

8 distribution system, which lacks well-defined flyable corridors. Satellite-based data, however,

9 is not as sophisticated as LiDAR, requiring several passes over the system to collect the data

10 needed. In addition, satellite images are not detailed enough to include conductor placement.

11 However, with satellite imaging, successive overpasses are paired with computer machine

12 learning algorithms, commonly referred to as artificial intelligence (AI), to effectively assess

13 the risk of both tree encroachment (grow-in) and strike potential (fall-in), thereby providing a

14 data-driven approach to identifying and managing the risk of vegetation encroachment on our

15 distribution system.

16   We believe that the detailed, over-time analysis provided by the LiDAR and satellite

17 tools will change the way our Vegetation Management programs are managed. Because these

18 images are taken on a regular basis, they show us where vegetation risk exceeds both

19 reliability and fire mitigation thresholds and give us valuable information regarding the

20 location of problem (or potential problem) vegetation issues over time. The analysis provided

21 is invaluable in directing planners and line clearing crews to specific locations on the system

22 to perform maintenance and mitigate risk trees rather than the traditional method of working

23 on an entire circuit or polygon. This data gives us the ability to send crews to the areas of

1   greatest need with accuracy. Since the satellite data collection is artificial intelligence-

2   integrated, the model learns with each flight, combining historical data with specific tree

3   species and growth cycles. These models will essentially learn Avista's system and the

4   vegetation around our lines. Both of these technologies allow planning work in a more precise

5   and predictable way, streamlining our vegetation management programs and helping to

6   maximize their value.

7   **Q.**   **What constitutes a risk tree inspection for Avista?**

8   A.   Note that at present, analysis of satellite imagery alone does not constitute a

9   satisfactorily completed risk tree inspection of the distribution system. The satellite inspection

10   project is still a pilot project and Avista is working to ground-truth the results of the analysis

11   and decide how it may be used in the future to supplement the inspection process. Thus, a

12   satisfactory mile of risk tree inspection is completed when a visual assessment has been

13   performed that confirms the presence or absence of risk trees with the potential of imminent

14   fall-in hazard to the energized facilities. A risk tree is a visibly dead, diseased, structurally

15   defective, damaged or dying tree that could fall into the conductor and should be assessed as

16   defined in ANSI A300 (Part 9)-2011 "Tree Risk Assessment - a. Tree Structure Assessment."

17   Fast growing, incompatible tree species with the potential of imminent grow-in hazard or

18   found to already be in contact with conductors are also identified during a risk tree inspection.

19   Reasonable efforts are made to remove such trees. In the event tree removal cannot be

20   accomplished, aggressive pruning following ANSI A300 guidelines is acceptable. Avista's

21   goal is to inspect 100% of non-urban distribution miles visually with inspectors on site

22   performing the inspections.

23   Specific to risk tree inspection on the transmission system, LiDAR and visual

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1   inspection from a helicopter are used to confirm the absence of risk trees. However, the

2   presence of risk trees identified from LiDAR or from visual inspection from a helicopter may

3   necessitate further in-person inspection to ascertain the tree's proximity to the line and

4   potential to fall into the energized facilities, then it is scheduled for remediation.

5   Risk tree inspection is satisfactorily completed when all identified risk trees are

6   captured in the appropriate database (currently FieldNote for distribution, Field Maps for

7   transmission), notification is made from the inspection contractor to Avista, and the workplan

8   is updated.

9   **Q.   How is vegetation mitigation work scheduled?**

10   A.   Ultimately, tree work is assigned to a tree crew for mitigation. Work is

11   aggregated for planning (inspection) and completion (mitigation) in geographic polygons.

12   Plans (inspections) are queued upon completion of an inspection polygon and prioritized for

13   assignment for mitigation by WUI ranking. Execution of the mitigation schedule is subject to

14   various constraints including regional accessibility due to weather, regional vehicle weight

15   restrictions, obtaining individual regional permits and regional industrial fire protection level

16   restrictions. Remediation actions include notification of customers in advance of work,

17   obtaining any necessary permits to perform work, organizing any specialized equipment

18   and/or arranging for site-specific requirements to perform work, and ultimately pruning or

19   removal of vegetation according to plans. This work may be impacted by issues such as

20   availability of tree trimming crews, the time it takes to acquire permits, weather conditions,

21   access, and property owner reluctance to allow access.

22   **Q.   What kinds of partnerships has Avista developed related to vegetation**

23   **management?**

1   A.   Partnerships with non-Company parties is critical, and Avista is doing so with

2   a variety of agencies who share a vested interest in wildfire mitigation, including working

3   with professional firefighting agencies at every level (from local to national) in training and

4   response, incorporating their input and feedback, and providing funding to local agencies to

5   reduce fuels on their properties near our facilities. Avista is actively partnering with the

6   Washington Dept. of Natural Resources, Idaho Dept. of Lands, the U.S. Forest Service, the

7   Nez Perce Tribe, local and regional fire agencies, and also with individual customers through

8   the "Safe Tree" Program which started this year.

9   Avista has always had good relationships with firefighting agencies that have

10   jurisdiction on the lands that our facilities occupy. These partnerships have been created in

11   part due to Avista's willingness to quickly respond to fires at the request of fire officials. In

12   2022, Avista has worked with fire officials in the State of Idaho on several occasions to share

13   information about our operations and what we are doing to decrease accidental fire starts from

14   our facilities. During these meetings we also solicited information about agency priorities and

15   high-risk areas to better coordinate our fire mitigation activities. Additionally, we are actively

16   pursuing agreements for expedited response on our transmission system with the Idaho

17   Department of Lands to secure a region-wide agreement. This agreement would increase fire

18   responder response time to transmission-based trip and reclose events in Kootenai, Bonner,

19   Shoshone, Benewah, and Latah counties.

20   **Q.   Can you please describe your fuel reduction efforts with external**

21   **agencies?**

22   A.   Yes. We are actively engaged with several land management agencies to

23   financially assist them with fuel reduction near our facilities. The State of Idaho identified

several communities that Avista serves with overhead electrical service that they classify as communities at risk of wildfire. Work with these communities includes mitigating dead trees on or adjacent to Avista-owned facilities and corridors, thinning small diameter trees, and removing brush.

In 2022 we were able to fund Bonner County Department of Emergency Management's Bonfire Program. Bonfire is a county-wide resource whose goal is to provide technical expertise to landowners who wish to reduce fuels in and around their homes. In addition to expertise, Bonfire also provides labor resources to complete the fuel reduction work prescribed. As a result of this partnership, Avista was able to pay for 82 acres of fuels treatment for our Idaho customers. While this benefits the people in that area directly, it also has a positive impact in developing additional partnerships in Idaho counties, which will ideally lead to additional partnerships with fire suppression and prevention agencies.

Q.   Can you describe your "Customer Driven Right Tree Right Place" Program?

A.   Avista piloted a new program we initially called "Customer Driven Right Tree Right Place," recently renamed the "Customer Choice Safe Tree Program." This program is designed to work proactively with customers in elevated fire threat areas who have tall-growing trees under or adjacent to our powerlines. The Safe Tree Program removes non-compatible vegetation (i.e., likely to grow into powerlines), cleans up the debris, and replaces the previous tree with a low-growing species of the customer's choice if the customer wishes to do so, all at no direct cost to the customer. 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.

1   In 2022 we piloted this program in Kellogg, Idaho, and later expanded the program to

2   Kootenai and Bonner counties, contacting specifically identified customers with an offer to

3   replace trees which are likely to fall into or grow into our lines with a low growing variety at

4   no direct cost to the customer. The results of the program were overwhelmingly favorable. As

5   of November of 2022, we had worked with 52 landowners to remove a total of 870 trees that

6   were deemed a risk to our system. Out of all the customers that participated, we found that

7   they were more excited to partner and reduce risk than they were about replacing the trees that

8   were removed. Only 63 trees were replaced during the pilot phase. While we see value in low-

9   growing trees being replaced on the landscape, the goal is primarily to remove trees that could

10   cause spark ignitions. In 2023 Avista plans to continue the work that was started in the pilot

11   phase and expand to more counites in our service territory. We will be adding a platform to

12   the Company's website allowing customers to request this service, which should be in place

13   by the end of 2023. We see a real win-win here as we protect our customers from a potential

14   hazard situation and reduce reliability risk.

15

16   **VI. SITUATIONAL AWARENESS STRATEGIES**

17   **Q.   What are your Situational Awareness Strategies?**

18   A.   Avista's Situational Awareness strategies are designed to enable remote

19   monitoring and control of equipment and provide operating horizon risk analytics.

20   Automation equipment will provide "eyes" on some of our most critical infrastructure in high-

21   risk areas. Many of Avista's circuit breakers do not support monitoring or control, which

22   means they cannot be remotely operated, requiring manual intervention to make changes to

23   settings or to identify an issue. This may take several hours depending on location and crew

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1 availability. Part of the Wildfire Resiliency Plan is installing modern circuit reclosers on

2 circuits deemed potentially at risk. These new reclosers are capable of remote monitoring and

3 operation. The Plan also includes Dry Land Mode operation, which can reduce spark potential

4 significantly by adjusting protection system sensitivity, and the Wildfire Fire Weather

5 Dashboard, a computer-based risk analysis system that combines elements of the 7-day

6 weather forecast (National Weather Service) with metrics associated with infrastructure

7 performance and fire risk, helping decision makers see potential fire-related conditions days

8 in advance and giving us more time to prepare and make operational changes.

9   There are four programs under the Situational Awareness part of the Plan: Dry Land

10 Mode Operations, the Fire Weather Dashboard, Substation SCADA Installations, and Dry

11 Land Mode Automation Devices. I will describe these programs in more detail below.

12 **Avista Dry Land Mode Operation**

13   During fire season, the Company transitions into the mode of limiting the number of

14 automatic circuit recloses on specific circuits. This operating mode, which we call Dry Land

15 Mode (DLM), involves both identifying electric circuits that operate in elevated fire threat

16 areas and reconfiguring the associated protection systems to allow these protection devices

17 to be remotely and automatically adjusted for wildfire threat based on the operating location

18 and identified risk. All of these methodologies reduce the potential for spark events and the

19 risk of fire. We are transitioning from a manually based system where we have to send out

20 personnel to substations to make changes, to a fully automated system that Distribution

21 Operations manages from the control center. Work is proceeding with installing relays and

22 other automation equipment that will allow operators to remotely monitor and control

23 equipment in case the weather indicates a risk of a fire starting and spreading (i.e. high winds,

1   dry conditions).

2   The Wildfire Plan updated the Company's existing Dry Land Mode procedures by

3   adding two more levels of reclosing to Company operations:

4   1) <u>Non-Fire Season Mode</u> – Normal operations where circuit breakers automatically
5   reclose multiple times before locking out, with a focus on reliability.
6

7   2) <u>Base Level Dry Land Mode</u> – If a circuit is set to this protection level, when it trips
8   it waits a predetermined length of time then recloses to test the circuit. If it tests bad
9   the second time it will stay off until manually inspected before being placed back in
10   service. This level is used on specifically identified circuits during the bulk of fire
11   season to limit automatic reclosing of faulted circuits and to reduce spark-ignition
12   energy levels and associated fire ignition.
13

14   3) <u>Elevated Dry Land Mode</u> – Identified circuits placed at this protection level it will
15   stay off if it trips and tests bad. There is no time delay. This allows the circuit to close
16   back in for temporary faults but de-energizes for permanent faults by tripping off the
17   breaker. This is a level added via the Wildfire Plan. It is used during critical fire
18   weather events such as moderate to high wind levels combined with low relative
19   humidity levels. This mode prohibits line fuse operation to limit the scope of outage
20   impact, significantly reducing fault energy and associated fire ignition potential.
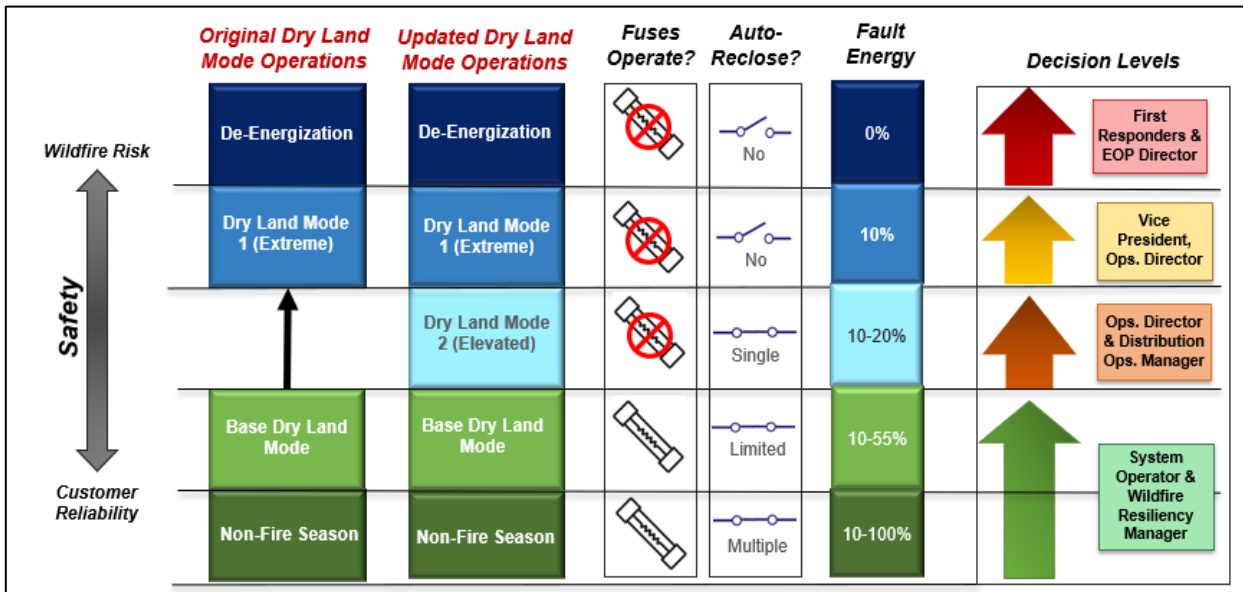21

22   4) <u>Extreme Dry Land Mode</u> – Circuits considered in extreme danger are configured for
23   instantaneous tripping and non-reclosing so if the circuit trips, it does not test or try to
24   reclose. It stays off until it is inspected and released back into service. This extreme
25   protection level will only be used for severe weather conditions. This level of
26   protection operates at significantly reduced energy levels, and once the feeder trips
27   due to a fault condition, mitigates the impact of future system faults due to the feeder
28   being in an off status until the feeder is patrolled and re-energized. This can
29   significantly impact customer reliability, as it may take several hours to patrol the line
30   and mitigate any issues found. This is another level added via the Wildfire Plan. At
31   this level, spark-ignition risk takes priority over service reliability.
32

33   5) <u>De-Energizing</u> – For extreme weather events exceeding Extreme Dry Land Mode
34   conditions, the Company will selectively implement de-energization on feeders or
35   sections of feeders as a measure of last resort in coordination with our partners and
36   first responders. This will likely only be done in a situation where there are no
37   customer impacts or if no other mitigation actions are available, and when it is clear
38   that the safety benefits exceed the cost of shutting off power to customers. We have
39   implemented de-energization at the request of first responders as a course of business
40   throughout our history.

1   **Illustration No. 3 – Dry Land Mode Levels**

2

	Original Dry Land Mode Operations	Updated Dry Land Mode Operations	Fuses Operate?	Auto-Reclose?	Fault Energy	Decision Levels
Wildfire Risk ↑ / Safety / Customer Reliability ↓	De-Energization	De-Energization	🚫	No	0%	First Responders & EOP Director
	Dry Land Mode 1 (Extreme)	Dry Land Mode 1 (Extreme)	🚫	No	10%	Vice President, Ops. Director
		Dry Land Mode 2 (Elevated)	🚫	Single	10-20%	Ops. Director & Distribution Ops. Manager
	Base Dry Land Mode	Base Dry Land Mode		Limited	10-55%	System Operator & Wildfire Resiliency Manager
	Non-Fire Season	Non-Fire Season		Multiple	10-100%	

11   **Q.   How does Avista enhance system protection during summer fire season?**

12   A.   As noted, Enhanced DLM levels were used during the 2022 fire season for the

13   first time ever. We implemented Elevated Dry Land Mode on two separate days encompassing

14   eight circuits, all in Washington state and potentially impacting just over 8,500 customers. No

15   service disruptions were experienced. Customers were notified of the elevated DLM

16   operations and potential for outages ahead of time using email and phone calls. This operation,

17   though new to Avista, worked just as expected and received the necessary support and

18   participation required from across the Company. We expect to use these higher levels of DLM

19   protection well into the future.

20   **Q.   Can you describe the difference between Enhanced Protection (DLM) vs.**

21   **Public Safety Power Shutoff?**

22   A.   Yes. When administering protection using a public safety power shutoff

23   (PSPS), circuits are preemptively removed from service based on calculated level of fire risk.

1   Circuits can be out of service for several hours to several days depending upon conditions, as

2   they must be manually inspected before reenergizing. The major difference between Dry Land

3   Mode Operations and PSPS is that Dry Land circuits are only removed from service when an

4   actual fault is experienced on the line, while PSPS circuits are proactively disconnected based

5   on an assessment of risk. Avista currently selectively de-energizes circuits based on a

6   spectrum of criteria, primarily impacts to customer service and safety, and only as a measure

7   of last resort.

8   The PSPS concept is not currently a formal level of our protection plan but the

9   implications of a PSPS are being evaluated. The Company believes that the trade-off between

10   a perceived and a real threat must be carefully considered. Avista has looked at how PSPS

11   plans used in California can have a significant impact on our customers in the number of

12   outages they may experience, in the length of those outages, and the risks and costs involved.

13   **Q.   Has Avista considered adding Public Safety Power Shutoff?**

14   A.   In 2021 and 2022, Avista reviewed various utility PSPS strategies in order to

15   understand the risks, costs, and benefits of PSPS. Avista is currently studying the development

16   of criteria for potential implementation of public safety power shutoffs. Avista has studied

17   implementing PSPS over the past couple of years, including analyzing the potential costs to

18   Avista customers based on California's PSPS programs. These estimates range from $21 to

19   $57 million per year for a similar type of PSPS plan if implemented in Avista's service

20   territory. This year we are taking an in-depth look at what other utilities, especially our

21   Northwest neighbors, are currently doing, as many utilities have changed their practices since

22   we began to look at this. Avista will be examining the analytics around what could potentially

23   trigger a PSPS event in our service territory, the impacts on our customers (especially those

1 who are most vulnerable) and how we might move forward with a PSPS plan that is suitable

2 for our own service territory and our customers' needs. A team is coming together to study

3 this issue in detail, and we hope to have recommendations in place by the end of 2023.

4   **Q.**   **Please describe Dry Land Mode Infrastructure and Automation.**

5   A.   Avista makes a great effort to reduce the number of "faulted circuits" through

6 programs such as Wood Pole Management, Vegetation Management, and adding

7 sectionalizing devices such as reclosers where they are needed as well as updating existing

8 midline and station breaker devices with "Dynamic Dry Land Mode" protection settings.

9 Equipment failures, vegetation contacts, wind, snow, and lightning are significant contributors

10 to line faults, and each line fault represents interruptions to electric service. When line faults

11 occur, distribution system protection is called upon to isolate the fault location.

12   In 2022, 116 total (systemwide) devices were updated/installed/commissioned with

13 dynamic DLM functionality in order to be fully automated, Dry Land Mode capable, and to

14 aid in implementing wildfire protection measures. There are currently 96 additional devices

15 that have been identified that require updates to achieve dynamic DLM functionality. This

16 brings the total to 216 planned device locations across Avista's service territory. Of those

17 already installed, 61 are located in Idaho. In total, Idaho is scheduled to receive 105 of these

18 devices. These devices were selected based on the downstream WUI tier zones that are served

19 (Tiers 2 and 3[19] were mandated by the Program, while some Tier 1 were also included based

20 on historical events.) This number is subject to change based on adjustments to the WUI

21 philosophy, Fire Weather Dashboard outcomes, synergies in work locations, etc.

22   **Q.**   **Please describe Dry Land Mode automation at distribution substations.**

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[19] Tier 1 is "low" risk, Tier 2 is "elevated" risk, Tier 3 is "extreme" risk.
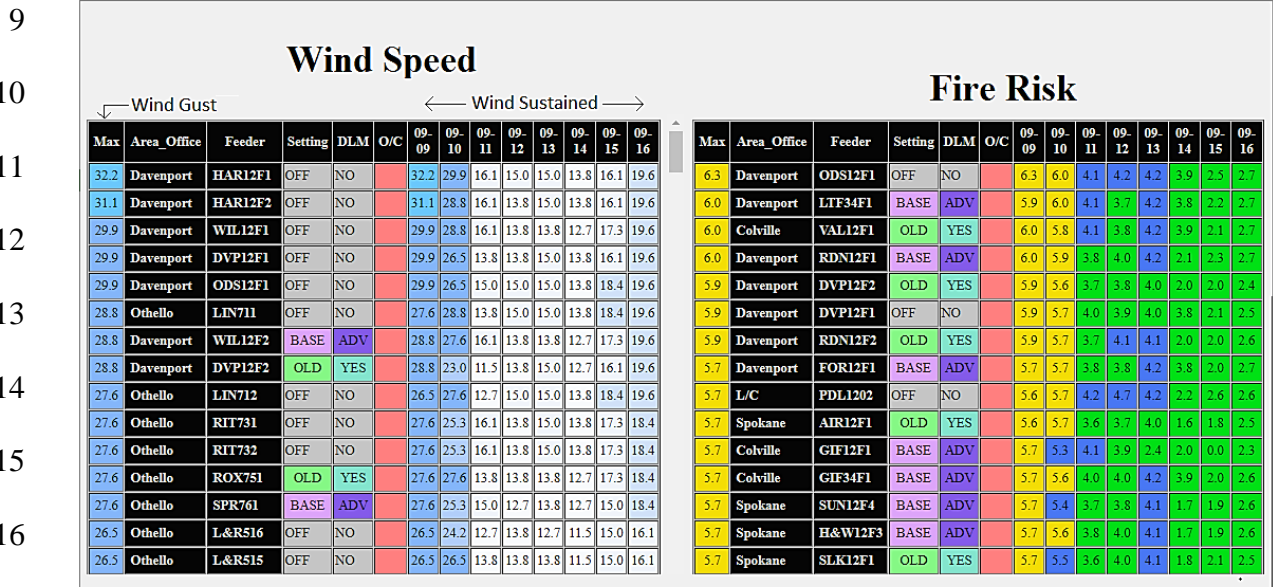
1   A.   To date, 53 station breakers (across 35 substations) in Avista's service territory

2   have already been installed/commissioned with dynamic DLM functionality. There are

3   currently 59 station breakers (across 36 substations) that have been identified which require

4   updates to achieve dynamic DLM functionality. This brings the total to 112 planned station

5   breakers as part of the project. In Idaho only, 23 station breakers (across 14 substations) have

6   already been installed/commissioned with dynamic DLM functionality. There are currently

7   25 station breakers (across 15 substations) that have been identified which require updates to

8   achieve dynamic DLM functionality. This brings the total to 47 planned station breakers in

9   Idaho as part of the project. These numbers are subject to change based on adjustments to the

10   WUI philosophy, Fire Weather Dashboard outcomes, synergies in work locations, etc.

11   **Q.   Please elaborate on Avista's Fire-Weather monitoring system.**

12   A.   In August of 2020, Avista began forecasting short-term fire risk, combining

13   elements of the National Weather Service 7-day hourly weather forecasts with Avista's circuit

14   health and performance metrics. This system has been refined and benchmarked against

15   historic fires in Eastern Washington and Northern Idaho. Known as the Fire-Weather

16   Dashboard, this tool provides daily quantitative fire risk potential metrics and helps system

17   operators and planners make better informed decisions on managing the risk potential of

18   powerline operations. The Dashboard is a risk-based model developed using historical data

19   based on our service territory. Closely coupled to this risk monitoring system is the multi-year

20   effort to modernize Dry Land Mode equipment and communications systems. Avista

21   developed a tiered system of protection levels including Base DLM, Elevated DLM, and

22   Extreme DLM levels. When forecasted fire risk potential reaches certain trigger points, Avista

23   makes changes to system protection to reduce faulted circuit energies and, in turn, the

1 probability of fire ignition. As mentioned earlier, in 2022 Avista elevated protection levels

2 from Base DLM to Elevated DLM on two separate occasions involving 8 distribution circuits

3 that serve approximately 8,500 Washington customers. Elevating system protection does

4 increase the number of potentially impacted customers and will increase outage duration due

5 primarily to the follow-up inspections required. However, none of the circuits experienced

6 contingency outages while operating in Elevated DLM and no customers were impacted. The

7 system worked as intended.

8 **Illustration No. 4 – Avista Fire Weather Dashboard (example from Sept. 9-16, 2022)**

Wind Speed

Wind Gust ← Wind Sustained →

Max	Area_Office	Feeder	Setting	DLM	O/C	09-09	09-10	09-11	09-12	09-13	09-14	09-15	09-16
32.2	Davenport	HAR12F1	OFF	NO		32.2	29.9	16.1	15.0	15.0	13.8	16.1	19.6
31.1	Davenport	HAR12F2	OFF	NO		31.1	28.8	16.1	13.8	15.0	13.8	16.1	19.6
29.9	Davenport	WIL12F1	OFF	NO		29.9	28.8	16.1	13.8	13.8	12.7	17.3	19.6
29.9	Davenport	DVP12F1	OFF	NO		29.9	26.5	13.8	13.8	15.0	13.8	16.1	19.6
29.9	Davenport	ODS12F1	OFF	NO		29.9	26.5	15.0	15.0	15.0	13.8	18.4	19.6
28.8	Othello	LIN711	OFF	NO		27.6	28.8	13.8	15.0	15.0	13.8	18.4	19.6
28.8	Davenport	WIL12F2	BASE	ADV		28.8	27.6	16.1	13.8	13.8	12.7	17.3	19.6
28.8	Davenport	DVP12F2	OLD	YES		28.8	23.0	11.5	13.8	15.0	12.7	16.1	19.6
27.6	Othello	LIN712	OFF	NO		26.5	27.6	12.7	15.0	15.0	13.8	18.4	19.6
27.6	Othello	RIT731	OFF	NO		27.6	25.3	16.1	13.8	15.0	13.8	17.3	18.4
27.6	Othello	RIT732	OFF	NO		27.6	25.3	16.1	13.8	15.0	13.8	17.3	18.4
27.6	Othello	ROX751	OLD	YES		27.6	27.6	13.8	13.8	13.8	12.7	17.3	18.4
27.6	Othello	SPR761	BASE	ADV		27.6	25.3	15.0	12.7	13.8	12.7	15.0	18.4
26.5	Othello	L&R516	OFF	NO		26.5	24.2	12.7	13.8	12.7	11.5	15.0	16.1
26.5	Othello	L&R515	OFF	NO		26.5	26.5	13.8	13.8	13.8	11.5	15.0	16.1

Fire Risk

Max	Area_Office	Feeder	Setting	DLM	O/C	09-09	09-10	09-11	09-12	09-13	09-14	09-15	09-16
6.3	Davenport	ODS12F1	OFF	NO		6.3	6.0	4.1	4.2	4.2	3.9	2.5	2.7
6.0	Davenport	LTF34F1	BASE	ADV		5.9	6.0	4.1	3.7	4.2	3.8	2.2	2.7
6.0	Colville	VAL12F1	OLD	YES		6.0	5.8	4.1	3.8	4.2	3.9	2.1	2.7
6.0	Davenport	RDN12F1	BASE	ADV		6.0	5.9	3.8	4.0	4.2	2.1	2.3	2.7
5.9	Davenport	DVP12F2	OLD	YES		5.9	5.6	3.7	3.8	4.0	2.0	2.0	2.4
5.9	Davenport	DVP12F1	OFF	NO		5.9	5.7	4.0	3.9	4.0	3.8	2.1	2.5
5.9	Davenport	RDN12F2	OLD	YES		5.9	5.7	3.7	4.1	4.1	2.0	2.0	2.6
5.7	Davenport	FOR12F1	BASE	ADV		5.7	5.7	3.8	3.8	4.2	3.8	2.0	2.7
5.7	L/C	PDL1202	OFF	NO		5.6	5.7	4.2	4.7	4.2	2.2	2.6	2.6
5.7	Spokane	AIR12F1	OLD	YES		5.6	5.7	3.6	3.7	4.0	1.6	1.8	2.5
5.7	Colville	GIF12F1	BASE	ADV		5.7	5.3	4.1	3.9	2.4	2.0	0.0	2.3
5.7	Colville	GIF34F1	BASE	ADV		5.7	5.6	4.0	4.0	4.2	3.9	2.0	2.6
5.7	Spokane	SUN12F4	BASE	ADV		5.7	5.4	3.7	3.8	4.1	1.7	1.9	2.6
5.7	Spokane	H&W12F3	BASE	ADV		5.7	5.6	3.8	4.0	4.1	1.7	1.9	2.6
5.7	Spokane	SLK12F1	OLD	YES		5.7	5.5	3.6	4.0	4.1	1.8	2.1	2.5

18 During fire season Avista continuously tracks localized weather patterns to identify

19 consistently dry conditions that promote lower fuel moisture, as well as extreme wind

20 conditions, as an acute risk-based warning system for wildfires. Because weather cannot be

21 controlled, Avista desires to prioritize where there is increased potential for wildfire given

22 current conditions, fuel, terrain, and prior ignition events. Avista's Fire Weather Dashboard

23 is our primary tool for identifying transient fire danger potential on our system. This tool

1   allows insights into each feeder in the distribution system, providing a risk level based on a

2   robust spectrum of information including wind speed and direction, sustained winds, humidity

3   level, type of vegetation, temperature, condition of equipment, mode of operation, and more.

4   It provides a dynamic look at Avista's daily fire risk and weather conditions, identifying areas

5   and times where problems may arise and when the risk is increasing beyond a desirable point.

6   It provides notice to take actions to mitigate potential risk on individual facilities throughout

7   our system. It has the ability to track current fire paths and relationships to our facilities as

8   well as to estimate potential risk to Avista's infrastructure. When combined with the dynamic

9   operating capability provided by automation equipment, it guides the decision to enable

10   various levels of operations (Dry Land Mode operations) to mitigate risk.

11   **Q.**   **How does Fire-Weather monitoring impact operational decision-making?**

12   **A.**   Avista created the Fire Weather Dashboard to indicate the moments where

13   utility-sourced fire potential is at its highest and when fire spread rates pose significant risk to

14   neighboring communities. This has and will continue to allow Avista to make better

15   operational decisions as to when electric facilities should be placed in any kind of elevated

16   fire mode. These fire modes often have some level of tradeoff in reliability. This tool

17   accurately assesses the minimum timeframe needed to help mitigate the fire risk of a weather

18   event, also allowing Avista to move out of the elevated operational mode as quickly as

19   possible after the event has passed to a more reliability-focused operation.

20   The Fire Weather Dashboard has only had small modifications since 2021, limited to

21   small calibrations of the model in an attempt to best fit data to observed outcomes in real time

22   and through additional back casting. These tweaks were done to simplify action points, ensure

23   proper weighting of factors, and provide better data clarity to our operations team. This system

1   has also been benchmarked against historic fires in Eastern Washington and Northern Idaho.

2   We do anticipate a minor update to the Dashboard for the 2023 fire season due to our

3   WUI Risk map being refreshed in 2022. The new map allows for a more accurate view of the

4   static risk to our neighboring communities, and Avista will be using that data in our dynamic

5   fire weather modeling. This shouldn't have major impacts to the Fire Weather Dashboard, as

6   we will utilize the same logic to assess the fire risk, but it will incorporate the more granular

7   data to have an increased view of potential impact to communities.

8   **Q.   Please explain the importance and use of Avista's Wildfire Urban**

9   **Interface Risk Model.**

10   A.   Avista's risk mapping is oriented towards potential utility caused fires combined

11   with significant impact to communities. Because the Company's Wildfire Plan was developed

12   using a risk-based approach, the Company has identified higher risk areas that can benefit the

13   most from prudently applied mitigative actions, rather than blanket solutions applied to our

14   entire service territory. The recommendations provided in the Company's Wildfire Plan are

15   based on each recommendations' ability to reduce the operating and financial risk associated

16   with wildfires. Therefore, understanding risk and how risk is monetized is an important

17   component of understanding the content of the Wildfire Plan.

18   One element of risk reduction includes the prioritized application of solutions.

19   Recommendations within the Wildfire Plan consider geographic location and apply risk

20   reduction measures in areas with higher fire threat potential. The boundaries of forest lands

21   and homes and businesses are referred to as the Wildland Urban Interface (WUI). Homes and

22   businesses located near the WUI are determined to be most at-risk from the impact of wildfires

23   and are often located in rural areas that lack fire suppression resources. In 2022 Avista

1   undertook a total refresh of our static WUI map. Because of newly available datasets from the

2   USDA, we were able to create a system that directly assesses the static risk of wildfire to

3   communities related to our electric system. The traditional WUI mapping done by entities like

4   the Department of Natural Resources and others is a broader scale approach than our refresh.

5   We were able to isolate the probability of an Avista facility causing a fire at a location on our

6   system and then able to do some rudimentary fire analysis to determine the potential impact

7   of a potential fire in 360-degree directions. This level of detail should increase the focus of

8   our Wildfire Program to areas in our service territory where communities are at the greatest

9   risk of wildfire related to electric distribution facilities. Elements of this work include:

10   • Fuel Concentration – areas identified as having moderate to very high fuel
11   concentrations (areas with a high volume of trees) were considered in the analysis.
12   Fuels data was derived from the U.S. Department of Agriculture's Wildfire
13   Hazard Potential map (2018 USDA WHP).
14

15   • The U.S. Department of Agriculture's Wildfire Housing Unit Impact – areas
16   identified by their probability for total loss if a wildfire were to occur at that
17   location.
18

19   • Avista's Historic Outage Data – areas with higher levels of historic outages during
20   fire season were considered to have higher risk due to the increase in probability
21   of equipment failures in those areas.
22

23   • Vegetation Density – areas in the electric distribution system with increased
24   levels of tree cover are shown to be more at risk for outages to occur. Combining
25   this information with historic outage data helps represent the probability of an
26   area to have an outage event during fire season.
27

28   Using this information, Avista "Risk Levels" were established:

29   • WUI Tier 0 - None to low levels of fuel, outage potential and low to moderate
30   housing impact (lowest). Statistically, this represents fire risk of less than the
31   system average minus ½ of the dataset's standard deviation (low).
32

33   • WUI Tier 1 – Low to moderate levels of fuel, outage potential and low to
34   moderate housing impact (low). Fire risk is greater than WUI 0 but less than the

1   system average (moderate).

2

3   •   WUI Tier 2 – Moderate to high levels of fuel, outage potential and moderate

4   housing impact (medium). Fire risk is above the system average but less than the

5   system average plus ½ the standard deviation (elevated).

6

7   •   WUI Tier 3 – High levels of fuel, outage potential and housing impact (high). Fire

8   risk is above WUI 2 levels (extreme).

9

10   The combination of WUI 2 and 3 represents approximately 36% of Avista's distribution

11   system where fire risk exceeds the overall system average (high).

12   **Q.   How does the WUI Model influence wildfire risk mitigation programs?**

13   A.   The WUI map helps the Company identify and prioritize areas of greatest risk

14   and serves to inform our recommendations and operational decisions related to wildfire

15   resiliency.

16   **Q.   Please provide a summary of the 2023 WUI Risk Model.**

17   A.   Avista used the 2020 USDA Wildfire Hazard Potential Map (WHP)[20] to create

18   its newest Wildland Urban Interface Map. This map indicates that 36% of Avista's electric

19   distribution are in elevated fire risk zones (WUI Tiers 2 and 3). The original data did not

20   reflect the potential impact to communities as well as newly available data does. Because of

21   this, Avista's WUI map was updated in 2022, incorporating data from the USDA and U.S.

22   Forest Service called the "Wildfire Risk to Communities Housing Unit Impact Data."[21] This

23   data reflects the potential for housing to be impacted by a wildfire. The very detailed USDA

24   Housing Unit Impact Data represents where people live in the U.S. based on housing units

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[20] "Wildfire Hazard Potential (WHP) for the conterminous United States (270-m GRID), version 2018 continuous (2nd Edition)," 2018, https://www.fs.usda.gov/rmrs/datasets/wildfire-hazard-potential-whp-conterminous-united-states-270-m-grid-version-2018-continuous

[21] Scott, Joe H.; Brough, April M.; Gilbertson-Day, Julie W.; Dillon, Gregory K.; Moran, Christopher. 2020. Wildfire Risk to Communities: Spatial datasets of wildfire risk for populated areas in the United States. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2020-0060

1   and population counts, along with vegetation and fuel sources, with the goal of trying to

2   determine the most likely places wildfire impacts/damage will occur. It includes details such

3   as "building exposure type" which analyzes if buildings are directly exposed to wildfire from

4   adjacent wildland vegetation or if they are indirectly exposed to the impacts of fire from

5   embers or house-to-house ignition. The USDA's Wildland Hazard Potential is a model of

6   where wildfires are most likely to occur and how intense they may be, specifically areas where

7   a fire would be difficult to contain. These two relatively new detailed modeling tools, used

8   together, provide a solid understanding of wildfire risk. Avista's WUI map built on this

9   foundation and incorporated our own internal-use data for actual outage rates and vegetation

10   risk. The new map is in the process of full release to planners and designers for the 2023

11   construction season.

12

13   **VII. OPERATIONS AND EMERGENCY RESPONSE**

14   **Q.   Back to the elements of the Plan, please describe your Operations and**

15   **Emergency Response.**

16   A.   This part of the Plan encompasses both internal and external resources with a

17   goal of reacting to wildfire threat in a thoughtful, proactive, and coordinated manner, along

18   with the ability to rapidly respond as needed. Its purpose includes building solid working

19   relationships with outside entities and first responders, developing response strategies, and

20   tracking the progress and benefits of the Wildfire Plan programs. Elements of this include:

21   **Weekly Fire Risk Assessment Meetings**

22   During the last two fire seasons (2021 and 2022), the Wildfire Team has held weekly

23   fire risk meetings to provide updates and information sharing as well as gather feedback from

1   operations managers and other non-Company parties. Approximately 75 people are invited to

2   these calls including district managers, communications, system and distribution operations,

3   line crew leaders, legal, and more. These meetings often include personnel from the Idaho

4   Department of Lands and the Washington Department of Natural Resources. These meetings

5   are highly interactive and included a forum for Avista district managers to report on fires in

6   their operating districts including impacts or potential impacts to our infrastructure.

7   **Emergency First Responder Training**

8   Another element of the Wildfire Plan is to partner directly with fire protection agencies

9   and to cross-train personnel so that Avista first-responders understand fire incident command

10 structures and their role during an active event, and, in turn, fire professionals understand the

11 hazards associated with electric operations.

12 **State Partnerships to Expedite Fire Response**

13   In 2020 a Memorandum of Understanding was executed with the Spokane County Fire

14 Department that included the dispatch of fire patrol personnel to transmission-level outage

15 locations. This was a pilot program with Spokane County intended to be extended to other

16 counties. In 2022, Avista signed a similar agreement with the Washington Department of

17 Natural Resources, and now has expedited response agreements for Lincoln, Whitman,

18 Spokane, Stevens and Ferry Counties. We are also having active discussions with Idaho

19 Department of Lands for an agreement with Bonner, Kootenai, Shoshone, Benewah, and

20 Latah counties.

21 **Fire Ignition Data Tracking**

22   Avista's Outage Management System (OMS) is used to track electric outages

23 including causation information such as: tree fall-ins, car-hit-pole, wind, animal, underground

1   cable failure, overhead equipment, pole fires, etc. Fire is listed as an outage category, but

2   generally relates to structure fires and is not typically associated with Avista equipment.[22] The

3   OMS was designed to record actual events based upon cause, not impact, with the goal of

4   repairing or replacing equipment that has or could lead to an outage. Currently we can use the

5   OMS dataset to capture spark-ignition and fire events by searching the text strings of

6   Dispatcher comments.

7   **Q.   What are you learning/gaining from these partnerships?**

8   The benefits of these relationships are too numerous to list. Our external partners have

9   helped design, create, and shape our Wildfire Resiliency Plan since the beginning. They have

10 worked with us in actual fire situations, advised and guided policy and strategy, and shared

11 ideas and best practices to help us make the best possible choices. Synergy is a very powerful

12 force when bringing diverse groups of people together to address an issue that is of concern

13 to them all.

14   Avista has also taken a lead role in information sharing and learning regarding wildfire

15 with other utilities in the Pacific Northwest, with specific engagements with Idaho Power and

16 Northwestern Energy. We have also received guidance from San Diego Gas & Electric and

17 other utilities. Starting in 2019, Avista began organizing and hosting the Pacific Northwest

18 Wildfire Working Group meetings. This group shares information on planning, mitigation

19 strategies, and logistical constraints on a regular basis. Attendees in this meeting typically

20 include Idaho Power, Portland General Electric, Puget Sound Energy, Northwestern Energy,

21 PacifiCorp, and Chelan County Public Utility District. These meetings have been helpful for

---

[22] Many structure fires require Avista to turn off the power onsite to protect firefighters. Thus "fire" may be noted in the logs as the reason personnel were dispatched.

1   all participants in understanding the components of neighboring utilities wildfire plans and

2   the challenges that implementing them has brought.

3   In addition, Avista is an active participant in the Inland Empire Fire Chiefs

4   Association. We were asked to join in their meetings to add input on critical infrastructure

5   capabilities and needs during wildfire and other emergency response. This group includes the

6   Fire Chief of the City of Spokane and the Chiefs of Spokane County as well as the Spokane

7   County Department of Emergency Management and the Spokane County Sheriff's

8   Department. Along with information sharing, this relationship has brought a heightened

9   awareness of how fire and emergency response is coordinated as well as how the utility can

10   integrate into emergency response efforts.

11   Avista is also involved with the Western Energy Institute and other utility-based

12   organizations to gain learning and information-sharing related to emerging issues pertinent to

13   utilities. The risk that wildfire poses to utilities throughout the West has become a central

14   topic. Along with regular attendance, Avista has shared what we are doing in response to the

15   wildfire threat and have gained a better understanding of what other utilities are doing to

16   address the same issues.

17

18   **VIII. WILDFIRE METRICS**

19   **Q.   What metrics are you currently collecting related to Wildfire in general?**

20   A.   Our Wildfire programs are tracking a variety of data, statistics, and

21   achievements related to our programs. For example, a decreasing number of tree-related

22   outages should indicate the benefits of our Risk-Based Enhanced Vegetation Management

23   program. We are also tracking overhead equipment outages and pole fires, as these should be

1   positively impacted by grid hardening investments. However, most of the benefits of the

2   Wildfire programs will not show up immediately. Wildfire metrics are intended to reflect

3   long-term trends on our system. Only long-term trends are truly meaningful here; it is not

4   practical or reasonable to look merely to end-of-year results due to the variability of a variety

5   of factors, most specifically weather conditions. In addition, a marked change in these

6   statistics will take the time it requires to replace thousands of crossarms across the system,

7   change out aged equipment, and mitigate vegetation issues system wide, for example. None

8   of these programs will be completed within a year time frame but will be ongoing and offering

9   continual improvement.

10   We group our Wildfire metrics into three general categories: Performance,

11   Infrastructure, and Vegetation Management. We also monitor our budgets and actual

12   expenditures and look at both actual the year-to-date and the five-year average, updated over

13   time.

14   **Q.**   **What metrics are you currently collecting in the Performance category?**

15   A.   We collect information about several performance-based elements and for both

16   fire season and non-fire season. Descriptions are below. Related outages for the past five years

17   are summarized in Table No. 3 below:

18   **Table No. 3 – 5 Year Primary Outage Issues**

19

20

Outage Issue	2018	2019	2020	2021	2022	5-Year Average
Overhead Equipment Failure	659	655	608	622	750	659
Pole Fire	79	68	66	154	51	84
Spark Event	126	99	168	115	109	123
Trees Fall Into Lines	411	420	420	363	376	398
Trees Grow Into Lines	99	96	72	83	59	82

21

22

23

1   **Pole Fires**

2   Pole fires become more pronounced immediately following periods of hot dry weather.

3   In most cases, ignition occurs due to electric tracking between the interface of a wood pole

4   and a wood crossarm. Replacing wood crossarms with fiberglass crossarms has proven to be

5   effective in reducing pole fires, leading to fiberglass crossarms being an Avista standard for

6   over a decade. Every structure in a Wildland Urban Interface (WUI) tier 2 or 3 (elevated or

7   extreme fire threat areas) will eventually receive a fiberglass crossarm if a wood crossarm is

8   currently in place. This action will reduce pole fires over time.

9   **Tree Fall-In**

10   Vegetation issues, especially tree fall-ins, are a primary factor in spark ignition. For

11   Avista, tree fall-ins account for far more tree-related outages than tree grow-ins as mentioned

12   earlier. We have increased our annual hazard tree program by 80% (full system) and, with the

13   Wildfire Resiliency Plan, will be completing 100% inspection of the distribution and

14   transmission systems each year through a combination of boots-on-the-ground, aerial surveys,

15   LiDAR and satellite imaging. Tree fall-ins are a good representation of the number of dead,

16   dying, diseased or structurally defective trees impacting our system. Identifying risk trees and

17   mitigating them will drive down this metric. Decreasing numbers in this category will indicate

18   the success of our Risk Tree Vegetation Management Program over time.

19   **Tree Grow-In**

20   Left untrimmed, trees and branches can grow into powerlines. Though vegetation

21   management is prioritizing routine trimming in the WUI 2 and 3 areas, we are moving away

22   from cycle-based trimming only, and toward a risk-based approach, identifying 100% of the

23   risk trees on our system, which should be a more effective way of dealing with this issue. The

1 use of LiDAR and satellite imaging will help identify tree growth and health over time to

2 highlight the areas to prioritize for mitigation. We anticipate our statistics showing the benefits

3 of this approach over time.

4 **Overhead Equipment**

5   We are tracking events that could result in a primary wire (15 kV) on the ground,

6 which is both hazardous to the public and a fire risk. The involved equipment typically

7 includes failed conductor, fuses, splices, connectors, or crossarms. Our Grid Hardening efforts

8 should significantly reduce these types of outages over time as this equipment is methodically

9 replaced, starting in the highest fire threat zones.

10   **Q.   What metrics are you currently collecting in the Infrastructure category?**

11   A.   The infrastructure category program results are shown in Table No 4.

12 **Table No. 4 – Performance Program Category Results**

13

Grid Hardening Infrastructure Programs	2020	2021	2022
Miles of Distribution Grid Hardening	61.2	146	180
Transmission Steel Pole Replacements	33	35	38
Wildfire-Only Transmission Steel Pole Conversion (units)	n/a	1938	1454
Transmission Wood Pole Fire Resistant Mesh Wraps (units)	0	0	0

16

17 **Distribution Grid Hardening (miles)**

18   Grid hardening includes several elements all focused on reducing fire-likely

19 distribution outages. This includes replacing wood crossarms with fiberglass units, replacing

20 obsolete small copper wire with modern steel-reinforced aluminum conductor, installing

21 wildlife guards, and replacing obsolete equipment and devices. We track grid hardening

22 efforts on a mileage-achieved basis, because each segment that undergoes this procedure is

23 discrete and constructed based upon existing equipment and what is required.

1   **Transmission Steel Pole Conversion (units)**

2   Replacing wood transmission structures and poles with steel specifically in high-

3   canopy areas is highly effective in preventing burndowns and fire induced transmission

4   outages. We set goals for replacing a specific number of wood transmission poles each year,

5   focused in high fire threat districts. We are currently refining the prioritization process to

6   include not only fire risk areas, but also historical fire information and topography. We

7   monitor replacement goals while noting that situations outside of our control such as a line

8   suffering unanticipated damage can reprioritize budget dollars.

9   **Transmission Wood Pole Fire Mesh Wraps (units)**

10   As explained elsewhere, transmission wood poles in low vegetation areas that are

11   subject to recurring grass fires can be protected by wrapping the pole with fire resistant

12   material at the base of the pole. Avista has been painting poles with fire resistant paint since

13   the mid 2000s, but as recommended in the Plan, we are moving to a fire-resistant mesh wrap

14   which has an effective life of 20 years compared to the two-to-five-year life we have

15   experienced with our fire-resistant paint. The number of installations completed is tracked

16   year by year.

17   **Q.   What metrics are you currently collecting in the Risk-Based Enhanced**

18   **Vegetation Management category?**

19   A.   The Vegetation category is focused on hazard tree identification and

20   remediation. We track several metrics related to this program including number of hazard

21   trees identified and mitigated, number of miles inspected, and number of satellite

22   (Distribution) or LiDAR (Transmission) miles completed.

23

1   **Table No. 5 – Risk-Based Veg. Management Program Category Results**

2

Enhanced Vegetation Management Programs	2020	2021	2022
Distribution Risk Tree Inspections (miles)	2810.8	2592.6	6466
Distribution Risk Trees Removed	10,091	12,796	15,678
Distribution Satellite - AiDASH (miles)	n/a	7675	7675
Transmission Risk Tree Inspections (miles)	1,355	2,270	2,270
Transmission Corridor Clearing (acres)	1,270	1,848	736
Transmission LiDAR (miles)	540	1,143	2,270

6

7   **IX. WILDFIRE COMMUNICATIONS PLANS**

8   **Q.   With the importance of the Wildfire Plan, does the Company have a**

9   **specific communications plan to inform internal and external parties?**

10   A.   Yes, it does. A key element of the Company's Wildfire Resiliency Plan is

11   ensuring that all interested persons know the plan is in place and that the Company is taking

12   the right precautionary steps to reduce the potential for and impact of a wildfire. A strong and

13   effective strategic communications campaign is critical to the Company to ensure broad

14   awareness and demonstrate Avista's commitment to reducing the impact of wildfires. This

15   plan must be in place and directed at all of Avista's key participants, including customers,

16   employees, state and local government officials and regulators, law enforcement and fire

17   departments, local media, and shareholders. Our wildfire communications goals are to create

18   awareness of Avista's plan to prevent or mitigate the risk of wildfires, promote the safety and

19   well-being of all customers, and to engage customers in programs that impact them and their

20   communities.

21   An important part of the Plan relates to emergency readiness both within the Company

22   and with our community partners. We have learned that partnerships are absolutely critical in

23   creating readiness, and we continue to add and enhance these relationships whenever we can.

1   Since the beginning of the Wildfire Plan, we have focused on outreach. The Company has

2   developed close and integral partnerships with outside agencies including first responders and

3   state and federal agencies. The Wildfire Team participates in weekly Washington Dept. of

4   Natural Resources and Idaho Dept. of Lands fire briefings during fire season and works with

5   fire agencies across our service territory in response to outage events, engaging with the tribes

6   on fuel reduction efforts and communications needs, and actively engaging with customers

7   through a variety of means from emails and bill inserts to direct engagement. The Company

8   is also cross-training with first responders regarding electric system and fire safety and

9   preparedness. All of these partnerships are integral to the success of our plan, as Wildfire is

10   too critical a situation for us to deal with strictly on our own.

11   **Q.   What are the Company's Wildfire Resiliency Communication Plan**

12   **objectives?**

13   A.   The Company's Wildfire Resiliency Communication Plan objectives, include

14   the following:

15   • Build awareness among all key participants of the significant actions and investments
16   Avista is making to prevent or mitigate the risk of wildfires.
17
18   • Instill confidence in Avista as a proactive and responsible corporate citizen.
19
20   • Demonstrate Avista's focus on prioritizing the safety and well-being of its customers
21   and the communities it serves.
22
23   • Provide examples of the Wildfire Resiliency Plan in action and show progress as it is
24   implemented.
25
26   • Engage customers in programs that impact them and their communities.
27

28   The first phase of the Wildfire Resiliency Communication Plan was focused on the

29   Plan's initial launch and the communications objectives noted above. The timing and

1 implementation of the tactics was aligned with the finalized plan and made publicly available.

2 No communications began until the organization was ready from an operational and

3 regulatory standpoint.

4 The subsequent phases of the Wildfire Resiliency Communication Plan support

5 specific strategies included within the Wildfire Plan, such as enhanced vegetation

6 management, grid hardening, and operational changes. Each initiative that requires customer

7 or external stakeholder behavior changes has its own communications plan with objectives,

8 tactics and timelines associated.

9 **Q.   What plans does the utility have in place to communicate with customers**

10 **about wildfire risk for this season overall, as well as specific wildfire work, risks, or**

11 **events?**

12 A.   We have a variety of ways we communicate with customers about our work.

13 We utilize our newsletters, customer emails, phone calls, social media, Avista's website and

14 earned media with our local media outlets. When projects directly impact customers, they are

15 directly notified of work happening in their area and its purpose. For example, informational

16 postcards are sent to customers who live near grid hardening projects. We also reach out

17 directly to customers who are eligible for vegetation management work through mail, email

18 and phone. For work that involves outages, we communicate multiple times. For example, for

19 a transmission project that replaces wood with steel, we send letters to customers in the area

20 and followed up with phone calls (through outbound interactive voice response calls) and a

21 series of ads in the local newspaper. There is not a one-size-fits all approach, and we work to

22 reach customers through many different channels. Some examples in 2022:

23   • Avista Connections: Articles in Avista's mailed and emailed customer newsletters
24   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, August and September 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.

- Dry Land Mode Specific Communications: We send an email and a press release at the start of Dry Land Mode for all customers. When there is a need for an elevated Dry Land Mode, we send emails and Interactive Voice Response (IVR) callouts (recorded phone messages) to all customers on the impacted circuits, including times we plan to go into the elevated mode.

- Telephone Town Halls: Avista uses 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 fire 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. In these meetings we share updates on our wildfire plan progress and plans for the future and invite emergency management professionals from that region for each town hall. We held four telephone town halls this summer.

- Print ads: We run a series of print ads in more rural communities about our wildfire resiliency efforts, including changes to Dry Land Mode. We ask customers to make sure their contact information is up to date with Avista so we can reach them as needed about changes to operations in their area.

- Community Meetings: Led by our regional business manager team, Avista hosts meetings with emergency management organizations in counties that have the highest wildfire risk in our service territory.

Q.   What strategies does the utility use to enhance situational awareness for its customers?

A.   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. In 2022, the Wildfire Community Outreach Subcommittee developed an Outreach Framework that included meetings to help educate more than 200 elected, community and tribal leaders about

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Avista Corporation

1   wildfire resiliency and Avista's Plan, as well as to gather insights about how to better engage

2   with our communities going forward. One of the key messages delivered in these meetings

3   was the Company's new strategy to elevate system protection settings (Dry Land Mode)

4   during critical fire weather events. It was important to ensure these community leaders

5   understood the potential for more frequent and longer power outages during these events. In

6   addition, the Company completed outreach to residential customers using the Telephone

7   Town Hall meeting platform. This first effort led to nearly 36,000 residential customers in 23

8   high fire threat communities (including 8 counties and include 3 tribes in both WA and ID)

9   being invited to engage, with about 7% of those participating. Customers gave Avista an

10   overall 'value' rating of 83% and commented on how helpful and useful they found this

11   engagement. In addition, Avista Regional Business Managers convened meetings with 8

12   county emergency management agencies and 3 tribal governments. The goal of these meetings

13   was to inform first responders on Avista's Wildfire Plan and to share information on how best

14   to coordinate activities before, during, and after an event.

15   **Q.   What strategies does the utility use to enhance situational awareness for**

16   **utility operators and employees?**

17   A.   Many of Avista's strategies involve long term projects to reduce the number

18   of system outages during summer operations. Programs such as distribution grid hardening,

19   transmission steel conversion, fire-resistant mesh pole wraps, and the 100% system risk tree

20   inspection and remediation address long-term fire ignition potential. However, transmission

21   and distribution infrastructure will continue to experience outages (weather, lightning,

22   vegetation) that pose a risk for fire ignition.

23   In 2020, Avista protection and distribution engineers conducted a full review of

1   existing Dry Land Mode operations and recommended several changes and upgrades to the

2   system, including installing modern circuit breaker and communication systems to allow

3   remote changes to system protection levels from Avista's Distribution Operations control

4   center. Avista will continue to modernize and enhance the Dry Land Mode equipment,

5   strategy, risk assessment process, and also the internal and external communications

6   associated with that system as we experience it and learn more.

7   Avista also developed a Fire Weather Dashboard based on GIS mapping of electric

8   infrastructure. This system combines the 7-day National Weather Service forecasts with

9   powerline metrics to produce a daily Fire Risk Potential. Each Monday during fire season,

10   this data is shared and reviewed with internal operation, engineering, and communication

11   employees, together with Avista leadership. Subsequent Fire Planning units are then

12   scheduled as needed to align with weather events. In addition to this meeting, a weekly email

13   summary is sent to over 150 employees to increase awareness and support transparency of fire

14   weather conditions across the electric system.

15

16   **X. 2022 FIRE SEASON RECAP AND LESSONS LEARNED**

17   **Q.   Did wildfires impact Avista infrastructure in the 2022 fire season?**

18   A.   Fire intensity for the 2022 fire season was below statistical norms for our

19   region. The Washington Department of Natural Resources (DNR) reported that the number of

20   fires in Washington for 2022 was 74% of normal, with number of acres well below average

21   at 24% of the 10-year average. In Idaho, though the number of fires in 2022 was near normal

1   at 104%, acres burned was significantly lower than normal at 13% of normal.[23]

2   For wildfire tracking purposes, Avista defines its service territory as a zone from the

3   centerline of its overhead electric facilities extending 200 meters horizontally on both sides.

4   Any fire that occurs within this zone is tracked. In the 2022 fire season, there were 67 fires

5   that occurred within this zone. 90% of these fires were less than 10 acres in size and the

6   majority were third-party human caused or the cause is officially listed as unknown.[24]

7   Avista experienced four wildfires that impacted our system, with sustained impacts

8   ranging from outages to structure damage. We lost 55 transmission and distribution structures

9   to these fires. The Express Fire on July 17, near the Clearwater River Casino outside of

10   Lewiston, Idaho, was started by lightning. This fire burned right through our transmission

11   line, but this section is all steel, so it suffered no damage. This fire helped prove the concept

12   that steel poles make our system more resilient and help protect customer reliability.

13   The Lind Fire on August 4, burned through low grassy areas and wheat fields and

14   continued into the town of Lind, Washington, where it destroyed six homes and ten other

15   structures. Avista lost 12 transmission and 22 distribution structures to this fire, which was

16   started by a local farmer harvesting wheat. Avista de-energized powerlines to protect fire

17   crews but energized specific areas of feeders so firefighters could pump water to fight the fire.

18   Once conditions were safe, Avista crews rushed to replace the 34 lost structures, working

19   through the night to restore service to all customers by the next morning, an amazing feat.

20   The Wagner Road Fire on August 18 was one of the largest fires in Washington. It

21   started east of St. John, Washington, and burned through the Lind-Shawnee line. This fire is

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[23] Historic fire information can be obtained from the National Interagency Fire Center (NIFC) at
https://www.nifc.gov/fire-information/statistics
[24] The amount of acreage impacted by the incidents ranged from less than a tenth of an acre to 2000 acres.

1 suspected to have been caused by a combine harvesting wheat. It burned through rangeland,

2 stubble, and standing wheat, destroying four outbuildings and 20 Avista transmission

3 structures. As soon as fire crews released Avista personnel to work in the area, crews from

4 Pullman, Spokane, and Coeur d'Alene mobilized. It took them only four days to get this line

5 back in service, including working in dust three feet deep in places, and bringing in special

6 equipment to drill through solid basalt to place steel poles.

7   The Cannon Fire on August 30 in Spokane was started by a passing train. It

8 significantly charred a two-pole transmission structure on the Metro-Sunset line, which was

9 still standing but had to be replaced.

10   These fires provided valuable information regarding the value of steel poles in

11 protecting infrastructure, as proven by the Express Fire, which burned right through our lines

12 but did not damage the line or impact customers. They were also indicative of the speed and

13 responsiveness of our crews, as even under very trying conditions they restored power very

14 rapidly. Partnerships and relationships were also a factor. Our field crews partnered with first

15 responders to ensure their safety in fighting the fires while also working with them to ensure

16 that we were providing the power needed to enable water and equipment to fight the fires.

17   **Q.**   **What were the biggest challenges faced in 2022?**

18   A.   Scaling the vegetation management risk tree program to complete 100% risk

19 inspection annually is a much bigger and more expensive proposition than originally

20 anticipated. Avista expanded its risk/hazard tree program from a program concurrent with

21 cycle trimming (20% annually) to a 100% risk tree inspection and remediation

22 program. Vegetation planners had forecasted the volume of dead, dying, and diseased trees

23 that could potentially strike powerlines prior to 2022. In 2022 we completed 6,466 miles of

1   inspections for the distribution system and another 2,270 miles for transmission,[25] – a new

2   record for Avista - but the number of risk trees is nearly double earlier estimates. Avista has

3   never conducted a 100% inspection of risk trees and we are finding that forest health issues

4   are much worse than anticipated. This situation was made more dire by the historic drought

5   of 2021 but also reflects increased levels of insect activity combined with human activity, all

6   leading to higher levels of tree mortality than expected. However, tree fall-in risk represents

7   the highest risk of spark-ignition potential and Avista remains committed to inspecting 100%

8   of the system on an annual basis. Avista removed nearly 19,000 dead, dying, or diseased trees

9   within strike distance of our facilities in 2022. That is a record level of tree removals for

10   Avista.

11   Other issues are also creating complexity and cost. In addition to finding more risk

12   trees than anticipated, tree-related labor resources have been an issue. Utilities across the

13   western U.S. are all competing for the same labor resources and Avista's primary inspection

14   contractor was repeatedly unable to recruit and retain enough inspectors to complete the work.

15   Given this level of competition for resources, contractors – if we are able to secure them - are

16   able to command 60-hour work weeks, lodging, and per diem allowances, unexpectedly

17   increasing costs for this critical program.

18   Impacts from forest health (drought, insects, disease, weather, and fire) continue to

19   create spikes in risk trees on the system and necessitate the addition of labor accordingly,

20   which will likely continue to elevate costs. Another issue that is cropping up is permitting and

21   acquiring customer permission to access trees for removal. The Vegetation Team is

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[25] Note that 6,466 miles is 100% of the non-urban Vegetation Management polygons rather than the entire distribution system, and 2270 miles of LiDAR inspection for transmission is a combination of ground based, helicopter, and/or LiDAR.

1   developing strategies to deal with these barriers, focusing on the fact that it is in everyone's

2   best interests to remove danger trees for public safety, protection of customer reliability, and

3   prevention of wildfires, but these types of issues create delays and can increase costs.

4   　　　As mentioned earlier, Avista is also beginning to incorporate remotely sensed LiDAR

5   and satellite imagery data into the vegetation management programs. These are new

6   technologies to the Company and will need more experience and refinement before they truly

7   begin replacing boots-on-the-ground labor resources. However, after our initial experience in

8   100% inspection and subsequent mitigation, this should become more of a known quantity

9   and easier to right size the labor required to complete this work on an annual basis.

10

11   **XI. ADAPTING AND UPDATING THE WILDFIRE PLAN**

12   **Q.　　Have you changed the Plan since 2020? If so, what are the primary**

13   **differences?**

14   　　A.　　Yes. The initial risk assessments remain sound and are the foundation for our

15   programs. However, the budgets have changed over time as we learn from the implementation

16   of the Plan. Many of the original budget elements were best estimates at the time, and these

17   have been refined to reflect what we have experienced. For example, we now have extended

18   contracts with the LiDAR and satellite providers for digital data collection, so we know what

19   to budget for those programs. We have also combined some smaller programs into the larger

20   groups to streamline and simplify, for example including circuit recloser communications in

21   the general category of Dry Land Midline Reclosers. A few programs were reorganized to

22   more closely align with our experience in working with the Plan and based on what made

23   sense.

1   We continue to try to improve our Wildfire Plan across the entire spectrum, from

2   hard goals such as grid hardening miles achieved to outreach and engagement. As described

3   earlier, we increased vegetation management risk tree inspections to 100% of all non-urban

4   incorporated areas outside of WUI risk zones in 2022. In addition, we will be adding

5   additional circuit breakers to the automated Dry Land Mode operations to allow remote

6   operation and automatic response to wildfire risk. We are also committed to improving the

7   metrics we collect and watching our performance measures to ensure the Plan stays on track

8   and is accomplishing the missions we've committed to around Wildfire.

9   **WUI Risk Map Refresh**

10   Avista used the 2018 USDA Wildfire Hazard Potential Map (WHP)[26] to create its

11   initial Wildland Urban Interface Map. This map indicated that 40% of Avista's electric

12   distribution and 20% of the transmission grids are located in elevated fire risk zones (WUI

13   Tiers 2 and 3). The original data did not reflect the potential impact to communities as well as

14   newly available data does. Because of this, Avista developed a revision to our wildfire risk

15   tiers to incorporate data from the USDA and U.S. Forest Service called the "Wildfire Risk to

16   Communities Housing Unit Impact Data."[27] This data reflects the potential for housing to be

17   impacted by a wildfire. The new, more refined WUI map indicates that approximately 36%

18   of our infrastructure is located in elevated fire risk zones.

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[26] "Wildfire Hazard Potential (WHP) for the conterminous United States (270-m GRID), version 2018 continuous (2nd Edition)," 2018, https://www.fs.usda.gov/rmrs/datasets/wildfire-hazard-potential-whp-conterminous-united-states-270-m-grid-version-2018-continuous

[27] Scott, Joe H.; Brough, April M.; Gilbertson-Day, Julie W.; Dillon, Gregory K.; Moran, Christopher. 2020. Wildfire Risk to Communities: Spatial datasets of wildfire risk for populated areas in the United States. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2020-0060

1 **Transmission Steel Pole Conversion Prioritization**

2   Metrics suggest that electric transmission assets are vulnerable to the impact of fire

3 but are generally not a significant driver in fire ignition events. As mentioned earlier, from

4 2009 to 2022 there were 5 individual transmission incidents classified as spark events (about

5 0.3% of the total sustained transmission outages). The 2020 Wildfire Plan identified 20% of

6 the transmission system as located in Wildland Urban Interface Tiers 2 and 3 (elevated and

7 extreme) and wildfire related steel transmission placement was based upon that information.

8 Starting in 2023, we are refining the Transmission Steel Replacement Program by including

9 fire history. Fire occurrence data is available from a program called Monitoring Trends in

10 Burn Severity (MTBS).[28] This program is managed by the Earth Resources Observation and

11 Science Center (EROS)[29] and the USDA Forest Service Geospatial Technology and

12 Applications Center (GTAC).[30] It includes names, locations, fire perimeters, acreage, start

13 date, and fire type for all fires over 1,000 acres that have occurred in the U.S. between 1984

14 and 2018.[31] Avista selected fire maps associated with our service territory and layered them

15 over our transmission system. This allowed us to see the historic fires that have occurred

16 within strike distance of our transmission lines as well as acquire a count of the frequency of

17 the fires near each line, identifying lines or segments most likely to experience fire issues

18 based on past actual events.

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[28] https://www.usgs.gov/centers/eros/science/monitoring-trends-burn-severity?qt-science_center_objects=0#qt-science_center_objects

[29] EROS studies land change based on millions of satellite images it collects. https://www.usgs.gov/centers/eros

[30] 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

[31] Fire data for 2019 and 2020 was unavailable from MTBS 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

1   The Company has a contract with GeoDigital to provide annual LiDAR images of the

2   transmission system for both vegetation management and to aid in inspection studies. The

3   GeoDigital GIS vegetation dataset can be layered over our transmission line maps to indicate

4   where our lines are in high tree level or forested areas versus low-growth areas such as

5   farmland or desert, as well as to identify developed areas. This information aids in further

6   prioritizing our resiliency efforts. This segregation is significant from a cost perspective, as it

7   allows us to separate our mitigation efforts into poles in high canopy/forested areas which are

8   candidates for steel replacement, and those in low vegetation areas, which may be adequately

9   protected with fire resistant mesh. The cost for replacement of a wood pole with steel is several

10   thousand dollars per pole versus a few hundred dollars for installing mesh wrap on a pole.

11   Thus, knowing where the poles are physically located, and the geography of the area, has a

12   significant budget impact.

13   **Elevating Dry Land Mode (DLM) Protection in 2022**

14   Historically, the DLM system has been used in a binary fashion, turned on in July

15   when fire season traditionally begins and then back off in October when it ends. Avista is

16   moving ahead with plans to automate our fire season with DLM operations, which is a multi-

17   faceted operation versus simply on or off. Approximately half of Avista's distribution system

18   is impacted by DLM. We now have capacity to use two additional fire modes ("elevated" and

19   "extreme," both described earlier) which significantly reduces fire risk potential but also puts

20   customers at greater risk for service disruptions due to the potential for extended duration of

21   the outage, creating a balance between customer reliability and wildfire risk.

1   **Comprehensive Community Outreach in 2022**

2   Starting in May of 2022, Avista created a multidisciplinary team to plan and

3   implement a Community Outreach effort. As mentioned earlier, Avista's Regional Business

4   Managers took the lead on developing content for a series of meetings that included State,

5   County, and City/District fire protection agencies and emergency management coordinators.

6   These meetings helped to raise awareness of Avista's Wildfire Resiliency projects with a

7   particular focus on operational strategies deployed for the 2022 fire season. A number of

8   topics were discussed including what support Avista can provide to emergency first

9   responders during an event. For example, Avista has committed to assigning a Company

10   representative to attend all Fire Incident Command briefings and to act as a single point of

11   contact for Incident Command. Avista has and will continue to work with fire protection

12   agencies to make them safer near electric infrastructure during firefighting activities. Avista

13   personnel routinely respond to emergency requests to curtail power or to de-energize electrical

14   equipment when fire fighters are suppressing structure and wildland fires in order to protect

15   them.

16   As noted earlier, this year Avista conducted telephone townhall meetings with

17   residential customers in high fire threat districts to provide customers an opportunity to ask

18   questions about Wildfire preparedness and related projects as well as to connect with

19   resources, and met with over 200 elected, community, and tribal leaders about wildfire

20   resiliency and Avista's Wildfire Plan.

21   A new feature of the Plan for 2023 is to pull lists of customers on every Dry Land

22   Mode circuit before the season starts, which will help us be faster and more efficient in

23   notifying customers on those circuits if we elevate Dry Land Mode settings. Efforts are also

1   currently underway to integrate critical infrastructure customers (fire, police, communication,

2   water, sewer, transportation) as well as individual life-support customers that rely on in-home

3   medical equipment with Dry Land Mode operations so that we can better and more quickly

4   inform these customers about changes to system protection levels.

5   **Undergrounding Where Feasible**

6   Avista recently conducted a review of underground and overhead line infrastructure

7   associated with new commercial and residential customers. As part of the 2023 Wildfire

8   strategy, we will commit to underground facilities in connecting new customers in high fire

9   threat districts whenever financially feasible. This will be an addition to the Plan and serve

10   as a guiding principle across the Avista service territory.

11

12   **XII. COMPARISON OF AVISTA'S PLAN WITH OTHER UTILITIES**

13   **Q.   How does Avista compare with other utilities in terms of costs and**

14   **measures employed for wildfire?**

15   A.   Avista is very proud of our Wildfire Plan. We have created, in a matter of a

16   few years, a comprehensive, thoughtful, carefully planned set of programs that will make a

17   difference in mitigating wildfire risk – and we have implemented them. We partnered with

18   experts from across our industry, fire professionals, state and local agencies, and brought in

19   our own inhouse expertise to ensure that our Plan and its elements are as comprehensive as

20   possible and revised as necessary. When we compare our efforts to other utilities with years

21   of wildfire experience such as those in California, we compare quite favorably to our peers.

22   Though we are implementing almost all of the same programs, we have kept our cost per

23   customer quite low, as shown in Table No. 6 below. In fact, Avista's spending per-customer-

1   per-year (including operations and capital) is among the lowest of the group.

2   **Table No. 6 - Wildfire Total Program Cost Comparison[32]**

3

Utility	2020 Actual Spend (thousands)	2021 Actual Spend (thousands)	2022 Forecast Spend (thousands)	Customer Count	3-Year Ave. Cost/Customer
San Diego Gas & Electric	$569,237	$646,466	$669,869	1,490,000	$421.83
Pacific Gas & Electric	$4,461,564	$4,797,530	$5,963,945	5,500,000	$922.61
Southern California Edison	$1,356,800	$1,658,800	$1,620,400	5,000,000	$309.07
PacifiCorp (California only)	$19,416	$33,098	$96,819	46,000	$1,082.12
NV Energy	$29,558	$44,702	$45,997	1,335,164	$30.02
Rocky Mountain Power	$25,900	$33,800	$69,200	1,212,000	$35.45
Idaho Power	n/a	$580	$65,072	610,000	$53.81
Avista	$5,851	$26,978	$42,206	403,000	$62.06

8   As Table No. 7 below shows, Avista is performing a range of industry-standard grid

9   hardening measures that are largely consistent with our peers.

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[32] "San Diego Gas & Electric Company 2020-2022 Wildfire Mitigation Plan Update" https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf, Page 8
Pacific Gas & Electric: "2022 Wildfire Mitigation Plan Update – July 26, 2022 Revised" page 40 https://www.pge.com/en_US/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan.page, pg. 40
Southern California Edison: "SCE 2022 WMP Update" https://www.sce.com/safety/wild-fire-mitigation page 26
PacifiCorp: "2022 Wildfire Mitigation Plan May 6, 2022" https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificpower/rates-regulation/california/filings/2022-wmp/2022_WMP_Update.pdf Page 27-28
Nevada Energy: www.nvenergy.com/safety/ndpp, pages 35-92, 109, 113, 124. Summary chart on pg. 129-131. These numbers are from 2020. They update them every three years.
Rocky Mountain Power: "Utah Wildland Fire Protection Plan Cost and Compliance Report" https://pscdocs.utah.gov/electric/21docs/2103535/318957UtWldlndFrPrtctnPlnCstCmplncRprt6-1-2021.pdf Page 2 and 3
Idaho Power: https://docs.idahopower.com/pdfs/Safety/2022Wildfire%20MitigationPlan.pdf Pages 22 & 30)

1 **Table No. 7 - Wildfire Program Component Comparison[33]**

2

Utility	Wood to Steel	Fiberglass Crossarms	Fire Wrap	Covered Conductor	Fuses / Sectionalizing Devices	Small / Bare Wire Replacement	Enhanced Veg. Mgmt.	Weather Stations / Cameras	Targeted Underground
San Diego Gas & Electric [1]	Yes	Yes	Unknown	Yes	Yes	Yes	Yes	Yes	Yes
Pacific Gas & Electric [2]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Southern California Edison [3]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PacifiCorp (California only) [4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NV Energy [5]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rocky Mountain Power [6]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Idaho Power [7]	Yes	Yes	Yes	Piloting	Yes	Yes	Yes	Yes	Yes
Avista [8]	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes

7 Avista's Wildfire Resiliency Plan is built upon the concept of Plan-Do-Check-Adjust.

8 We are continually evaluating the efficacy of our programs and adjusting them as we see

9 opportunities for improvement. As described above, using our Plan-Do-Check-Adjust

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[33] http://compositesmanufacturingmagazine.com/2020/03/utilities-ready-to-invest-in-frp-solutions/
PG&E has replaced 18,000 wood poles with steel so far.
https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/reference-docs/TD-9001B-009.pdf
https://www.pgecurrents.com/2020/12/02/pge-crews-meet-the-challenge-hardening-infrastructure-as-they-rebuild-in-areas-burned-by-wildfires/#:~:text=To%20date%2C%20PG%26E%20has%20completed,and%20fire%2Dresistant%20distribution%20system.&text=Over%20the%20next%20several%20years,in%20high%20fire%2Dthreat%20areas.
https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20200812_the_hard_work_of_hardening_pge_makes_the_grid_more_resilient_and_resistant_to_wildfire_risk_in_high_fire-threat_areas
https://www.cpuc.ca.gov/General.aspx?id=6442465120
https://download.newsroom.edison.com/create_memory_file/?f_id=5cf986322cfac27268541b26&content_verified=True
https://download.newsroom.edison.com/create_memory_file/?f_id=5e3e0f052cfac20ace5c2f4f&content_verified=True
https://energized.edison.com/stories/crews-install-fiberglass-power-poles-in-high-fire-risk-areas
https://www.sdge.com/sites/default/files/regulatory/SDG%26E%202021%20WMP%20Update%2002-05-2021.pdf
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1   methodology we have made some significant improvements in just the past year including:

2   ▪ Prioritizing steel transmission pole replacements in the highest risk areas based on a
3   spectrum of inputs, including fire history, versus utilizing WUI zone alone.
4
5   ▪ Differentiating areas where less costly solutions such as fire mesh wraps can provide
6   suitable protection.
7
8   ▪ Significantly improving the inputs to our WUI map to more clearly define risk areas
9   and to specifically include structural and human impact.
10
11   ▪ Adding additional modeling inputs and capability to our Fire Weather Dashboard to
12   advance our ability to forecast and identify risk.
13
14   ▪ Actively seeking out and building valuable partnerships and connections to support
15   our wildfire efforts.
16
17   ▪ Engaging with first responders such as the Washington Department of Natural
18   Resources and the Idaho Department of Lands and other agencies both prior to and
19   during actual fire events, as well as aiding them in reducing fuels near our facilities.
20
21   ▪ Engaging with and learning from our utility peers and working closely with them to
22   strategize and develop best practices.
23
24   ▪ Developing and improving our communications with customers around wildfire.
25
26   ▪ Acquiring digital data for both the transmission and distributions systems for
27   identifying risk trees, providing detailed data about our grid and vegetation related
28   issues for mitigation and reducing fire risk.
29
30   ▪ Developing Enhanced Dry Land Mode operations to provide a comprehensive scale
31   of risk reduction based upon actual conditions.
32

33   **Q.   Does this conclude your pre-filed direct testimony?**

34   A.   Yes.