

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-20_____

DOCKET NO. UG-20_____

DIRECT TESTIMONY OF
DAVID R. HOWELL
REPRESENTING AVISTA CORPORATION

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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 joined the Company in 2005 after spending 5 years with TransCanada-GTN. I have held various positions at Avista supporting both natural gas and electric operations. Between 2005 and 2015 I held various natural gas engineering and operations positions 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 team.

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

A. My testimony and exhibits detail the Company’s response to the increasing threat of wildfires within Avista’s service territories by proactively implementing its Wildfire Resiliency Plan. Avista’s Wildfire Resiliency Plan (“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 incorporates the
 3 incremental costs associated with the Company's Wildfire Plan within her Electric Pro Forma
 4 Study, and discusses Avista's deferred accounting petition, requesting recovery of Avista's
 5 Wildfire Plan expenditures (expenses) in 2021 prior to new rates going into effect, as well as
 6 the Company's proposed Wildfire balancing account to track these expenditures over the life of
 7 this ten-year program (as discussed by Ms. Andrews).

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

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

22 A. Yes. I am sponsoring exhibits Exh. DRH-2 through Exh. DRH-6, as follows:

- 23 • Exh. DRH-2 - Wildfire Resiliency Plan (May 2020)
- 24 • Exh. DRH-3 - Wildfire Risk Analysis Summary, Proposed Actions
- 25 (September 2019)
- 26 • Exh. DRH-4 - Wildfire Resiliency Cost Forecast (January 2020)
- 27 • Exh. DRH-5 - Wildland Urban Interface (WUI) Map
- 28 • Exh. DRH-6 - Wildfire Resiliency Communications Plan
- 29 • Exh. DRH-7 – Wildfire Resiliency Plan Capital Business Case
- 30

1 **II. SUMMARY NEED FOR WILDFIRE PLAN AND RECOVERY OF COSTS**

2 **Q. Please provide a summary of the wildfire risks experienced across the**
3 **western United States and recently in Avista’s own service territories.**

4 A. The risk of large wildfire events is increasing across the western United States.
5 Data from Climate Central’s “2016 Western Wildfire Report” suggests a 300% increase in
6 large fires, and a 600% increase in the number of acres burned, since 1970. The escalation of
7 risk is particularly acute in several states including Idaho, Wyoming and Montana, where a
8 10-fold increase has occurred. Though southwestern states are most at-risk, Washington and
9 Idaho are ranked in the top ten of at-risk states. This increases the probability of fire starts
10 and elevates the overall risk of fire impact.

11 Major wildfire activities in recent years, in states such as California, illustrate that
12 utility operating risk is increasing related to wildfires. More recently, fire events in Avista’s
13 own service territory have occurred, striking areas hard with devastating results. In early
14 September 2020, Washington state lost 600,000 acres to wildfires, including the wildfires that
15 occurred in Avista’s own service territory. Governor Inslee, in a recent visit to Eastern
16 Washington, stated:

17 In the last three days, we have lost more acreage to fires than in any single
18 entire year in the history of the state of Washington except 2015,” he said.
19 “The enormity of these fires, the geographical scope, the intensity and the
20 destruction are unequalled in Washington state history. ... We do know that
21 we’re living in a new Washington,” he said. “We’re living in a Washington
22 where explosive fire seasons are becoming, unfortunately, routine. Not the
23 exception. In the last five years we’ve had three of the worst fire seasons ever
24 in the history of the state of Washington.”¹
25

¹ Lewiston Tribune, September 11, 2020

1 **Q. Please briefly describe the efforts undergone by Avista to evaluate the risk**
2 **of wildfires in its service territories.**

3 A. As the number of large wildland fires in the Pacific Northwest continue to trend
4 upward, Avista, beginning in June of 2019, held a series of wildfire workshops² to evaluate
5 opportunities to reduce the risk of wildfires associated with the Company’s electric
6 transmission and distribution systems in its Washington and Idaho service territories. The
7 results of the workshops, together with input from the Company’s Wildfire Steering
8 Committee and the broader wildfire Subject-Matter-Experts (“SME”), served to inform
9 Avista’s electric Washington and Idaho (combined) Wildfire Plan. Avista developed its
10 Wildfire Plan based on experience and information from its peers in the energy and forestry
11 industries that focus on reducing wildfire risk in the Company’s electric service territories in
12 Washington and Idaho. The Wildfire Plan described in detail below and included as Exh.
13 DRH-2, details the development and implementation of a comprehensive multi-year effort,
14 that includes enhanced system hardening and vegetation management efforts reflecting a
15 focus on reducing fire ignition events, as well as other situational awareness and operational
16 efforts.

17 As provided in the Wildfire Plan, Avista is proposing a proactive, strategic, continuous
18 improvement and risk informed approach to respond to the wildfire risks on our system,
19 encompassing immediate steps, as well as long-term efforts to reduce wildfire risk. Specific
20 Wildfire Plan objectives include a focus in the following areas:

² These workshops were a series of employee held workshops involving transmission and distribution subject matter experts (“SMEs”) held to identify opportunities to reduce risk on the Company’s overhead transmission and distribution systems. The primary goal of the workshops was to 1) identify actions to reduce the probability of electric ignition and 2) quantify the consequence or impact of potential actions. For more detail on these workshops see Exh. DRH-3, pages 19-20.

- 1 • Protect lives and property;
2 • Ensure emergency preparedness and align operating practices with fire threat
3 conditions; and
4 • Protect Avista’s energy delivery infrastructure.
5

6 Avista provides electrical service to approximately 400,000 customers in Washington
7 and Idaho, with over 120,000 of those customers living in elevated fire risk areas. A key
8 factor in Avista’s plan development is how best to reduce the likelihood of a wildfire related
9 to the Company’s electric operations. The recommendations made in this plan are based on
10 the ability to reduce the risks associated with public and worker safety, the risks to property
11 and infrastructure, and to lessen the impact of electric system outages to customers and the
12 community.

13 **Q. What specific Wildfire Plan costs has Avista included in this general rate**
14 **case for recovery?**

15 A. Included in the testimony that follows is a summary of the Company’s
16 recommendations and forecasted costs, annually, for the ten-year period 2020 through 2029.
17 Specific costs proposed by Avista in this general rate case however, as discussed by Ms.
18 Andrews, include the level of Wildfire Plan transmission and distribution expenses expected
19 during the rate period (October 1, 2021 through September 30, 2022) of \$4.025 million
20 (Washington share), as well as Washington’s share of Wildfire Plan capital projects
21 transferring to plant between August of 2020 and November 2021 of \$13.9 million³. The
22 overall electric revenue requirement included in this case associated with these costs is
23 approximately \$5.7 million. Approval of these proposed incremental costs is an important

³ A total transfer to plant balance of \$13.5 million on an average-monthly-average (AMA) basis was included in Ms. Andrews’ Electric Pro Forma Study for the rate effective period October 1, 2021 through September 30, 2022.

1 element of the Company's plan and helps support the level of wildfire mitigation efforts
2 proposed in the Company's Wildfire Plan.

3 In addition to the Wildfire Plan expenditures included in Ms. Andrews' Electric Pro
4 Forma Study, Ms. Andrews also discusses the Company's proposal to create a Wildfire
5 balancing account to track expenses over the 10-year life of the Wildfire Plan. Ms. Andrews
6 also discusses the deferral application Avista has filed with the Commission on November 1,
7 2020 (concurrent with the filing of this general rate case) requesting approval to defer wildfire
8 expenses incurred in 2021 prior to new rates going into effect, estimated at \$2.6 million for
9 the nine month period January 1, 2021 through September 30, 2021.

10

11 **III. OVERVIEW OF AVISTA'S WILDFIRE RESILIENCY PLAN**

12 **Q. Would you please describe in more detail the Company's Wildfire**
13 **Resiliency Plan.**

14 A. Yes. As noted above, in June 2019 Avista convened a series of subject matter
15 expert wildfire workshops to evaluate opportunities to reduce the risk of wildfire associated
16 with its electric transmission and distribution systems in its Idaho and Washington service
17 territories. The primary goal of these workshops was to: 1) Identify actions to reduce the
18 probability of electric ignition; and 2) Quantify the consequence or impact of potential actions.
19 Over the course of the six workshops held, over one hundred and sixty (160) potential action
20 items were identified and considered. (See Exh. DRH-3, pages 19-20 for more workshop
21 information.) The workshops, together with input from the Wildfire Steering Committee and
22 the wildfire SMEs, served to inform Avista's electric system Wildfire Plan (Exh. DRH-2). A
23 summary of that effort and preliminary recommendations for systems and practices, along

1 with modifications to existing maintenance and construction programs is provided in the
2 Company’s “Wildfire Risk Analysis Summary, Proposed Actions” report, included as Exh.
3 DRH-3.

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

5 A. As noted in the Wildfire Plan (Exh. DRH-2), and summarized below, the stated
6 goals of the Wildfire Resiliency Plan are to:

- 7 • Enhance Emergency Operation Preparedness (EOP): to recognize wildfire as a
8 recurring threat to utility infrastructure, the communities we serve, and our
9 customers.
- 10 • Promote Safety: to protect physical assets, property, and human lives. To manage
11 the risk of wildfire through design-based, system operations, asset maintenance,
12 and outreach activities.
- 13 • Safeguard Company Assets: to mitigate the impact of direct financial costs and
14 liability exposure associated with large-scale wildfire events.
15
16
17

18 **Q. In addition to these objectives, was a “model-framework” identified to
19 promote a comprehensive approach to wildfire risk?**

20 A. Yes. In addition to the objectives listed above, a model-framework was
21 identified to promote a comprehensive approach to wildfire risk. The elements of this model
22 approach include:

- 23 1. Planning, such as EOP response, insurance review, communications planning and
24 outreach;
- 25 2. Enhanced System Operations and Maintenance, such as system hardening,
26 vegetation management, and fire resiliency “Ops Toolkit”;
- 27 3. Weather and Fire Risk Monitoring, such as situational awareness and performance
28 metrics; and
29
30
31

1 4. Regulatory and Industry efforts, such as utility industry engagement, partnering
2 with fire protection agencies, legislative opportunities and Commission
3 engagement.
4

5 **Q. How did Avista analyze or evaluate the risk of wildfires and what was the**
6 **result of those findings?**

7 A. As a part of the Company's wildfire resiliency analysis, the Company focused
8 on understanding the risk exposure of wildfires in general, but also the opportunity to reduce
9 risk through specific actions taken associated with the Company's transmission and
10 distribution areas. Specifically, "Risk" was quantified as the probability of an event occurring,
11 times the financial impact of the event (Risk = Probability X Impact), where impact is
12 characterized as the sum of: 1) Direct Financial Cost (replacement costs, fire suppression, 1st
13 party damages) + 2) Customer (interruption cost estimate (ICE), 3rd party claims) + 3) Safety
14 (public and employee injuries).

15 Prior to the SME workshops held in June 2019, Avista contracted with the Core Logic
16 Consulting Group to conduct a risk analysis to ascertain the risk impact of a single large
17 wildfire event. Core Logic's analysis was based on historic observation and was limited to
18 the impact to property. It did not include the potential for loss of life, injury, fire suppression,
19 timber loss, and other economic loss factors. This exercise was conducted to provide a
20 baseline for the subsequent SME risk workshops and to determine if Avista's liability
21 insurance levels were adequate to protect against a single large event.

22 The Wildfire Risk Analysis Summary report (Exh. DRH-3) reflects the findings of the
23 SME workshop participants together with direct feedback from the Avista Wildfire Steering
24 Committee, Operations & Technical Staff, and Executive Management. It forms the basis of

1 Avista’s 2020 Wildfire Resiliency Plan. Avista’s risk analysis indicates that the accumulated
2 10-year risk of wildfires is at least \$8 billion dollars and is the driving force behind adding
3 wildfire specific defense strategies.

4 The Wildfire Risk Analysis Summary report provides a detailed description of all
5 electric transmission and distribution inherent and managed risk costs together with the
6 treatment implementation costs over the planned ten-year period. Further, proposed treatment
7 actions in these areas are identified and grouped as follows:

- 8 • Base Level – efforts that support or enable other actions; or standalone actions that
9 can be readily incorporated by the organization.
- 10 • Primary – actions that represent significant value (risk reduction) and are
11 recognized as industry best-practices.
- 12 • Secondary – actions that represent the highest risk value but require significant
13 human and or financial commitments.
- 14 • Future – identified as providing value but of lower priority and therefore, not
15 considered in the initial phase of the Wildfire Resiliency Plan.
- 16 •
- 17 •
- 18 •
- 19 •

20 **Electric Transmission**

21 **Q. Please describe the impact of wildfires and wildfire planning specific to**
22 **Avista’s electric transmission operations.**

23 A. Avista operates 2,270 miles of transmission in portions of western Montana,
24 northern Idaho and eastern Washington. In 2006, Avista adopted tubular steel poles as the
25 ‘standard installation’ for 115kV and 230 kV powerlines. Since that time, Avista has worked
26 to replace its aging wooden structures with steel, and all new construction is exclusively steel.
27 In 2009, NERC published the “Transmission Vegetation Management” standard FAC-003-2
28 which fundamentally reshaped the industry’s approach to transmission line clearance

1 activities. For Avista, the combination of system hardening, and well-maintained rights-of-
2 way, have increased the fire resiliency of its transmission system.

3 Transmission fire ignition events are relatively rare. From 2014 to 2018, there were
4 611 sustained outages, but only 252 between May and September (fire season). However,
5 there were over 3,000 momentary outages and nearly half of those (1,500) occurred during
6 fire season. Eighty percent (80%) of transmission line faults are momentary (less than five
7 minutes) and are generally the result of lightning, wind, and planned switching operations.
8 Conversely, the impact of fire to transmission structures can be significant. For example, the
9 replacement cost of a single wood transmission structure ranges from \$7,500 to over \$25,000,
10 and damages to conductor can escalate into the millions of dollars.⁴ For treatment actions
11 identified on the transmission system (base, primary, secondary and future), see Exh. DRH-
12 3, pages 6 – 11.

13

14 **Electric Distribution**

15 **Q. Please describe the impact of wildfires and wildfire planning specific to**
16 **Avista’s electric distribution operations.**

17 A. The vast majority of electric outages occur on the distribution system, but the
18 impact to customers is typically restricted by line fuse action (limiting outages to between 1-
19 100 customers typically). To contrast this situation, transmission outages are infrequent (low
20 probability) but often impact thousands of customers. However, from a fire prevention

⁴ 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. Company witness Ms. Andrews includes this capital investment in her Electric Pro Forma Study. Although this fire was not related to our facilities, it did take out this transmission line requiring replacement.

1 standpoint, the distribution system is the ignition source for most utility-related fires. Data
2 from the Outage Management System (OMT) indicates that annually, one hundred (100) fire
3 ignition events are associated with overhead distribution lines. In almost all cases, these fires
4 naturally extinguished or were extinguished by 1st responders, including Avista line
5 servicemen. In the current risk environment, the distribution system warrants enhanced focus
6 with respect to fire ignition, and this risk is especially acute in the wildland-urban interface
7 (WUI) areas (discussed further below).

8 Fire ignition sources include tree contacts with powerlines, but also include animal
9 contacts, equipment failure, and electrical pole fires. Between 2014 and 2018, there were
10 1,933 tree related outages with 1,011 occurring during fire season. Over that time period there
11 were 462 reported pole fires. Although the Company's distribution vegetation management
12 spend is approximately \$8 million annually, as the number of danger trees increases and
13 overall forest health declines, it is necessary to expand the amount spent on distribution
14 vegetation management. For treatment actions identified on the distribution system (base,
15 primary, secondary and future), see Exh. DRH-3, pages 12 - 17.

16

17 **Wildland Urban Interface (WUI)**

18 **Q. Please explain the importance and use of the Wildfire Urban Interface.**

19 A. Because the Company's Wildfire Plan was developed using a risk-based
20 approach, the Company has identified higher risk areas that can benefit the most from
21 prudently applied expenditures, rather than blanket solutions applied to our entire service
22 territory. The recommendations provided in the Company's Wildfire Plan are based on each
23 recommendations' ability to reduce the operating and financial risk associated with wildfires.

1 Therefore, understanding risk and how risk is monetized is an important component of
2 understanding the content of the Wildfire Plan.

3 One element of risk reduction includes the prioritized application of solutions.
4 Recommendations within the Wildfire Plan consider geographic location and apply risk
5 reduction measures in areas with higher fire threat potential. The boundaries of forest lands
6 and homes and businesses are referred to as the Wildland Urban Interface (WUI). Homes and
7 businesses located near the WUI are determined to be most at-risk from the impact of wildfires
8 and are often located in rural areas that lack fire suppression resources. In 2019, Avista's GIS
9 Technical Group created a combined WUI map for Avista's electric Washington and Idaho
10 service territories that is based on the following principles:

- 11 • Fuel Concentration – areas identified as having moderate to very high fuel
12 concentrations (areas with a high volume of trees) were considered in the analysis.
13 Fuels data was derived from the U.S. Department of Agriculture's Wildfire
14 Hazard Potential map (2018 USDA WHP).
15
- 16 • Housing Density – parcels smaller than 20 acres were included in the analysis but
17 highly-developed urban areas were excluded. Urban areas do not meet the
18 definition of Wildland Urban Interface.
19

20 Using this information, Avista "WUI Risk Levels" were established, similar to the
21 work done in California, identifying three wildfire risk levels:

- 22 • Tier 1 – Moderate levels of fuel and low to moderate housing densities (low)
23
- 24 • Tier 2 – Moderate to high levels of fuel and moderate housing densities (medium);
25 and
26
- 27 • Tier 3 – High fuel levels and moderate to high housing densities (high)
28

29 **Q. How does Avista use the WUI map areas within its Wildfire Plan?**

1 A. The WUI map helps the Company identify and prioritize areas of greatest risk
2 and serves to inform our recommendations and operational decisions related to wildfire
3 resiliency. The Wildfire Plan denotes the combination of WUI Tiers 2 & 3 as “elevated fire
4 threat areas”. These areas comprise 40% of Avista’s electric distribution and 20% of the
5 Company’s transmission systems. As shown on Exh. DRH-5 (Avista’s Proposed Wildland
6 Urban Interface Map), elevated fire threat levels are depicted in orange (Tier 2) and red (Tier
7 3) highlighted areas. Portions of the map not highlighted are classified as Non-WUI and
8 represent areas with low fuel concentrations, very low housing densities, or large urban areas
9 (> 10,000 population).

11 Plan Recommendation Summary

12 **Q. Please summarize the Wildfire Plan recommendations.**

13 A. As provided in Exh. DRH-2, the Wildfire Plan includes detailed information
14 on the 28 individual “Plan Recommendations,” grouped into four categories. Similar to other
15 utility wildfire plans (including those from Pacific Gas and Electric, San Diego Gas and
16 Electric, Southern California Edison, and PacifiCorp) these categories include:

- 17 • Grid Hardening – Replacing infrastructure in fire prone areas. The likelihood of a
18 spark-ignition source is mitigated and critical infrastructure is protected from the
19 impacts of fire. (See Exh. DRH-2, pages 25, 28-37)
- 20 • Enhanced Vegetation Management – Identifying potential conflicts on an annual
21 basis and prioritizing those risks from highest to lowest. Wildfire Resiliency aligns
22 resources with risk. (See Exh. DRH-2, pages 26, 38-49)
- 23 • Situational Awareness – Adding line and monitoring equipment, system operators
24 can respond quickly to variable weather and fire threat conditions. (See Exh. DRH-
25 2, pages 26, 50-56)
- 26 •
- 27 •
- 28 •

- 1 • Operations and Emergency Response – Through training and simulation, Avista
2 personnel will be better prepared to work with fire professionals during an event.
3 (See Exh. DRH-2, pages 26, 57-65)
4

5 Plan recommendations also reflect cost prudence and were adopted on their basis to:

- 6 • Leverage existing asset programs and operating practices;
7 • Promote public safety; and
8 • Mitigate financial risks.

9 Within the Wildfire Plan each recommendation is described, and the “Current” and
10 “Future State” of each distribution and transmission operation recommendation, as well as
11 expected benefits, are provided. (See summary tables on pages 9-11 of Exh. DRH-2.) Further
12 detail of the costs associated with these recommendations is described further in Avista’s
13 Wildfire Plan (pages 25 – 65) and summarized below.
14

15 **Wildfire Resiliency Communications Plan**

16 **Q. With the importance of the Wildfire Plan, does the Company have a**
17 **specific communications plan to inform its stakeholders?**

18 A. Yes, it does. A key element of the Company’s Wildfire Resiliency Plan is
19 ensuring that Avista stakeholders know the plan is in place and that the Company is taking
20 the right precautionary steps to reduce the potential for and impact of a wildfire. A strong and
21 effective strategic communications campaign is critical to the Company to ensure broad
22 awareness and demonstrate Avista’s commitment to reducing the impact of wildfires. This
23 plan must be in place and directed at all of Avista’s key stakeholders, including customers,
24 employees, state and local government officials and regulators, law enforcement and fire

1 departments, local media, and shareholders. The Company's Wildfire Resiliency
2 Communication Plan objectives, include the following:

- 3 • Ensure awareness among all key stakeholders of the significant actions and
4 investment Avista is taking to prevent or mitigate the risk of wildfires.
5
- 6 • Instill confidence in Avista as a proactive and responsible corporate citizen.
7
- 8 • Get "buy-in" support and recognition from key stakeholders that Avista is taking
9 wildfire safety seriously and has a Wildfire Resiliency Plan in place.
10
- 11 • Help generate support and recognition for Avista as a leader that it is doing all it
12 can to help avoid wildfires and has in place a strong wildfire prevention and safety
13 program.
14
- 15 • Demonstrate Avista's focus on prioritizing the safety and well-being of its
16 customers and the communities it serves.
17

18 The first phase of the Wildfire Resiliency Communication Plan was focused on the
19 plan's initial launch and the communications objectives noted above. The timing and
20 implementation of the tactics was aligned with the finalized plan and made publicly available.
21 No communications began until the organization was ready from an operational and
22 regulatory standpoint.

23 The second phase of the Wildfire Resiliency Communication Plan supports specific
24 strategies included within the Wildfire Plan, such as enhanced vegetation management. Each
25 initiative that requires customer or external stakeholder behavior changes, has its own
26 communications plan with objectives, tactics and timelines associated.

27 Included as Exh. DRH-6 is a summary of Avista's Wildfire Resiliency
28 Communication Plan.

1 **IV. FORECASTED RISK AND COST SUMMARY**

2 **Q. Please describe Avista’s forecasted risk and 10-year cost analysis of its**
3 **Wildfire Plan.**

4 A. Precise identification of the risk and cost for any given year is not possible nor
5 realistic, and for wildfires in particular, there are a significant difference between small fire
6 events, which can occur many times each season, versus a large event, which occur
7 infrequently. Therefore, in order to represent a more realistic picture of relative risks and costs,
8 a 10-year planning horizon was adopted.

9 As noted above, Avista developed its Wildfire Plan based on our own experience as
10 well as information from peers in the energy and forestry industries. As a part of this
11 development, Avista prepared its “Wildfire Resiliency Cost Forecast,” dated January 2020,
12 which provides detailed information of the 10-year cost forecast for the period 2020 through
13 2029 (see Exh. DRH-4). This cost information, along with the detailed risk analysis of the
14 selected plan recommendations, helped inform Avista’s Wildfire Plan recommendations (Exh.
15 DRH-2) and is consistent with the “Wildfire Risk Analysis Summary – Proposed Actions”
16 (Exh. DRH-3).

17 The Wildfire Resiliency Cost Forecast report (Exh. DRH-4) focuses on forecasted
18 capital investments and operating expenses based on the recommendations from the Risk
19 Analysis Summary (Exh. DRH-3).⁵ Several estimates are based on results of Avista’s
20 Subject-Matter-Expert Fire Workshops (June 2019), while others reflect parametric estimates
21 based on subsequent efforts to develop the WUI map (Exh. DRH-5). Feasibility estimates

⁵ The cost forecast reflects a refinement in scope versus that of Exh. DRH-3 and includes preliminary cost estimates.

1 generally reflect accuracy levels between 30 and 50%. Definitive cost estimates require final
2 engineering design and contractual commitments for materials and labor.

3 **Q. Please describe the four main areas wildfire activities were grouped into**
4 **to create Avista’s specific cost forecast for its Wildfire Plan.**

5 A. Consistent with what is discussed above, in developing the cost forecast for the
6 10-year planning horizon from 2020 to 2029, activities were grouped into the following four
7 main areas:

8 **Enhanced Vegetation Management** – This includes actions in excess of Avista’s
9 current Vegetation Management program and reflects a focus on reducing fire ignition
10 events. Plan elements include collecting vegetation data via digital hi-resolution
11 photography and Light Imaging, Detection, and Ranging (LIDAR), increasing the
12 frequency of the Risk Tree treatments in fire prone areas, and conducting a public
13 outreach campaign associated with ‘right tree-right place’ concepts.

14
15 **Situational Awareness** – This category includes extending Supervisory Control and
16 Data Acquisition (SCADA) systems to a portion of Avista’s thirty-three non-
17 communication substations (dark stations). Using SCADA to monitor and control
18 powerlines is a fundamental tenant of utility wildfire plans across the western U.S. and
19 Canada. Avista also plans to develop a web-based ‘fire-weather dashboard’;
20 combining publicly available weather and fire threat information to inform operational
21 readiness and enable enhancements to the Dry Land Mode (DLM) distribution
22 protection scheme, which is the current operating mode for higher risk feeders during
23 fire season.

24
25 **Operations “Toolkit” & Metrics** – Avista has a number of existing work processes
26 and programs aimed at reducing the impact of wildfire. Enhancements to existing
27 programs and the addition of other ‘operating’ elements are included in this group.

28
29 **Grid Hardening & Dry Land Mode** – Avista developed a non-reclosing distribution
30 protection scheme back in the early 2000’s to mitigate fire ignitions. The protection
31 scheme known internally as Dry Land Mode (DLM) will be updated to ensure
32 alignment with program objectives. Additionally, infrastructure replacements or *grid*
33 *hardening* will be implemented to reduce fire ignitions.

34
35 **Q. What are the forecasted wildfire resiliency risk and cost values of these**
36 **four main areas?**

A. Summarized risk values, along with cost values, for these four main categories are shown in Table No. 1 below, representing the 10-year electric system (Washington and Idaho) planning horizon for both incremental operating expense as well as capital improvements to infrastructure. In simple terms, risk is the product of the probability of an event and its consequence:

$$\text{Risk} = (\text{The likelihood of occurrence, or probability}) \times (\text{The financial impact of an event})$$

- Inherent Risk - describes the current state risk level and reflects defense strategies already in place.
- Managed Risk - describes the future state risk level with the addition of Wildfire Resiliency elements

The values shown for risk in Table No. 1 are percentage based and reflect a range for each category.

Table No. 1 - Resiliency Risk and Cost Summary (system)

Resiliency Risk and Cost Summary					
2020-2029 Operating Horizon	Inherent Risk (range %)	Managed Risk (range %)	Risk Mitigation (avg %)	10-yr Capital Investment (\$)	10-yr Operating Expense (\$)
Enhanced Vegetation Management	48.3-100	3.2-14.5	88%	\$5,100,000	\$51,175,000
Situational Awareness	25.9-100	0.8-1.1	98%	\$17,965,000	\$1,019,000
Operations & Emergency Response	19.7-100	5.3-23.4	76%	\$300,000	\$2,378,000
Grid Hardening & Dry Land Mode	41-100	0.7-2.7	98%	\$245,600,000	\$5,014,000
Plan Total	44.1-100	2.8-12.5	89%	\$268,965,000	\$59,586,000

“Enhanced Vegetation Management” and “Grid Hardening & Dry Land Mode” risk scores indicate a “bounded range” because the probability of occurrence is based on the frequency of forced outages. Although the probability of electrical outages is well understood, an event’s impact can vary widely based on many factors, including weather, fire risk levels,

1 emergency response, and location. Managed risk scores represent future state levels, and
2 lower levels of event probability and event outcome. In Table No. 1, the column labeled “Risk
3 Mitigation (avg %)” indicates the average percentage difference between current state and
4 future state risk levels.

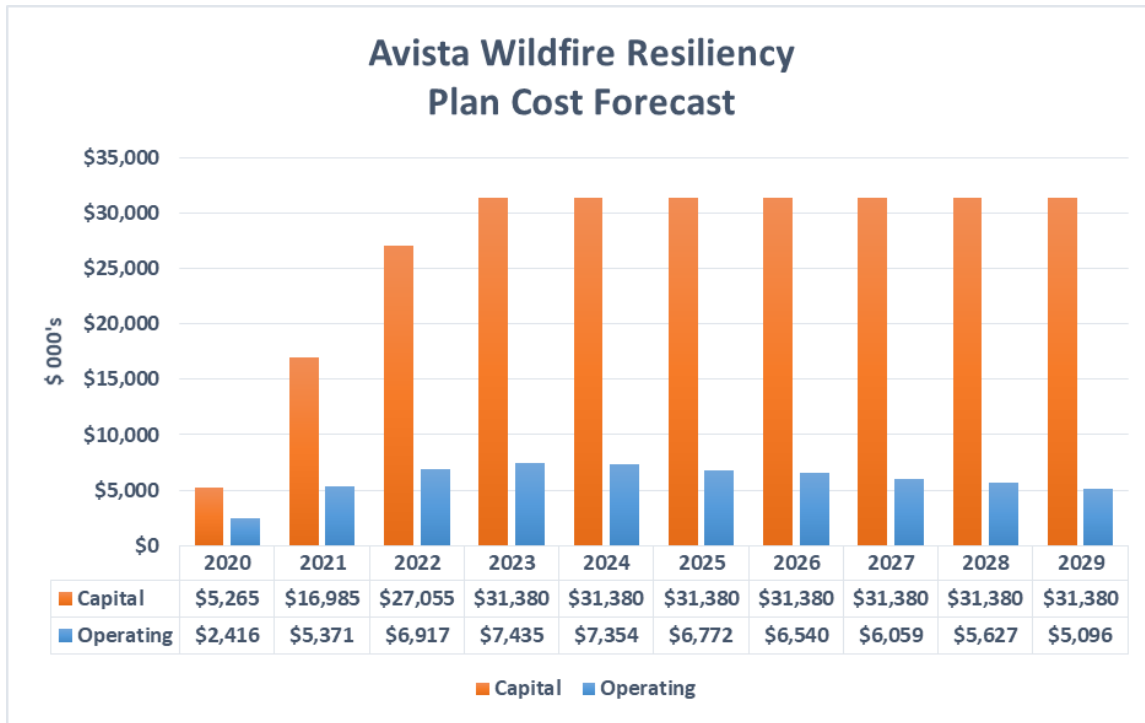
5 As noted in Table No. 1, the wildfire resiliency program includes a capital investment
6 of \$268,965,000 over a 10-year period with corollary operating expenses of \$59,586,000 (all
7 electric system numbers).⁶ Comprehensive risk analysis indicates a 10-year inherent potential
8 risk exposure of at least \$8 billion dollars. This value includes the accumulated risks
9 associated with all 28 Wildfire Plan recommendations and should not be interpreted as a
10 precise financial estimate. A better metric is the percentage of risk mitigation which reflects
11 an 89% reduction for the overall plan.

12 **Q. What is the estimated capital and operating expense on an annual basis**
13 **over the 10-year plan horizon of 2020 - 2029?**

14 A. The following Graph No. 1 illustrates the total estimated capital and operating
15 expense, on a per year basis (Washington and Idaho electric) from 2020 to 2029.

⁶ All operating expenses provided reflect incremental amounts above existing expense levels and are specific to the Wildfire Resiliency Plan.

Graph No. 1 – Avista Annual Wildfire Resiliency Plan Cost Forecast (system)



While capital plan elements are projected to sunset in 10 years, the majority of operating expense items are on-going and are generally related to enhanced vegetation management.⁷

As discussed above, the 28 specific individual plan recommendations that result in these costs estimates are provided in the Wildfire Plan. By far the single largest capital investment is associated with electric distribution grid hardening. This accounts for \$193,200,000 invested in distribution systems located in elevated fire risk areas, with another \$44,000,000 invested to convert wood poles to steel on the transmission system. These two plan elements account for 88% of total capital spend, over the ten-year period.

⁷ As noted above, the majority of the incremental operating expenses are generally related to enhanced vegetation management. Current vegetation management expenses included in Washington base rates are based on 2018 electric system levels totaling approximately \$7.9 million for distribution and \$1.3 million for transmission operations. Washington’s share of these amounts included in base rates today is approximately \$5.7 million for distribution and \$850,000 for transmission.

1 For operating expense, three elements: transmission and distribution digital data
2 collection; annual risk tree; and the public safety initiative ‘right tree right place,’ account for
3 \$42,700,000 (72%) over the same 10-year period. Though the Wildfire Plan includes 28
4 recommendations to mitigate the risk of wildfire, five of the elements accounts for 85% of the
5 total program costs. The overall Wildfire Plan capital business case is included as Exh. DRH-
6 7.

7

8 **Potential Operating & Maintenance Expense Offsets**

9 **Q. Are there potential operating and maintenance expense offsets expected**
10 **as a result of the Company’s Wildfire Plan?**

11 A. The goal of wildfire resiliency is to reduce the overall risk associated with
12 wildfires. In short, the benefits of this plan are largely measured in terms of risk reduction for
13 all parties involved. The Company, however, recognizes a potential for costs savings and cost
14 shifts from operating and maintenance expense towards capital investment. The overall impact
15 of cost savings and cost shifts will not be well understood until the plan is operational and
16 performance data can be obtained and analyzed. However, one of the objectives of this plan
17 is to reduce the number of equipment failures and tree-related outages and by doing so, avoid
18 emergency response.

19 The following Table No. 2 lists a number of potential cost savings opportunities
20 associated with the Wildfire Resiliency Plan.

Table No. 2 – Potential Cost Savings Opportunities

Plan Element	Benefit	Cost Savings/Shift
Annual Risk Tree and Right Tree Right Place Programs	Improved System Performance (fewer outages)	Reduced spend on emergency response and unplanned repairs
Digital Data Collection	Automates data gathering process for vegetation and structure condition inspection	Reduces field inspection activities. Enables computerized QA/QC functions
Grid Hardening	Improves System Performance (fewer outages)	Reduced spend on emergency response and unplanned repairs
Situational Awareness (communication & control systems)	Enables remote monitor and control or equipment	Reduced service related truck rolls
Operations & Emergency Response	Better prepared and equipped first responders	Reduces the risk of injury and accidents

It should also be noted that this plan indicates program level spend estimates and does not differentiate between incremental and embedded cost elements. Though many plan elements represent incremental costs, some activities will simply be absorbed by the workforce. For example, annual fire safety training will occur at monthly safety meetings which are already in place. This is an embedded cost estimated at \$1,300,000 over 10-years. However, the bulk of plan elements including enhanced vegetation management and grid hardening represent additional activities and incremental costs. As previously indicated, these categories account for 85% of overall program costs.

V. WILDFIRE RESILIENCY PLAN RECOVERY

Q. Please summarize the Company's Wildfire Resiliency Plan and its request of this Commission to recover planned wildfire costs.

A. As discussed above, the risk of large wildfire events is increasing across the western United States. Recent fire events in Avista's own service territories of Washington,

1 Idaho and Oregon, as well as major wildfire activities in other states such as California,
2 illustrate that utility operating risk is increasing related to wildfires. Reducing the risk of
3 wildfires is critical for customers, communities, investors, and the regional economy. Avista
4 has taken a proactive approach for many years to manage wildfire risks and impacts, and
5 through its Wildfire Plan, the Company has identified additional wildfire defenses for
6 implementation. The goals, strategies, and tactics set forth in this plan reflect a quantitative
7 view of risk. Additional research, conversation and analysis with Avista's operating staff and
8 steering group provided critical qualitative and contextual information that also shaped the
9 recommendations. This combination of quantitative and qualitative analysis ensures the
10 recommendations are robust, well-rounded, and thoughtful, and that they align with the plan
11 goals and are appropriate.

12 As noted above, the comprehensive risk analysis indicates a 10-year inherent electric
13 system risk exposure of at least \$8 billion dollars of accumulated risks associated with all 28
14 plan recommendations included in the Wildfire Plan. Although this not a precise financial
15 estimate, the Wildfire Plan recommendations reflect an estimated 89% risk mitigation of this
16 risk exposure.

17 As discussed, and presented in Table No. 1 above, the Company's wildfire resiliency
18 program, including all 28 plan recommendations, expects total costs over the ten-year period
19 2020 through 2029 to reflect capital investment of \$268,965,000, and corollary operating
20 expenses of \$59,586,000 (all electric system numbers). Table No. 3 below (see also Graph
21 No. 1 above) provides the program costs on a per year basis over the 10-year Wildfire Plan,
22 with the annual amounts for the period 2020 – 2029 as follows:

Table No. 3 – Wildfire Annual System Capital Investment & Operating Expense

(000s)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	10-YR Ttl
Capital	\$5,265	\$16,985	\$27,055	\$31,380	\$31,380	\$31,380	\$31,380	\$31,380	\$31,380	\$31,380	\$268,965
O&M	\$2,416	\$5,371	\$6,917	\$7,435	\$7,354	\$6,772	\$6,540	\$6,059	\$5,627	\$5,096	\$59,586

These total capital investments and expenses of the Wildfire Plan will be directly assigned or allocated to Avista's Washington and Idaho jurisdictions over time as the costs occur. As discussed by Ms. Andrews, specific costs proposed by Avista in this general rate case reflect the expected costs to be charged to Washington during the rate effective period of this case (shaded areas in Table No. 3 above reflect system balances considered in this case). Table Nos. 4 and 5 below split the annual system and Washington expected capital and operating expenses between distribution and transmission for the calendar periods 2020 through 2022 only, for the 10-year plan:

Table No. 4 – Wildfire Plan Capital Investment – Washington-Share & System

Total Wildfire Plan - Washington and System (Capital)						
	Washington			System		
	Distribution	Transmission	Total	Distribution	Transmission	Total
2020	1,958	1,317	3,275	3,255	2,010	5,265
2021	7,927	2,595	10,522	13,025	3,960	16,985
2022	12,918	3,857	16,775	21,170	5,885	27,055

Table No. 5 – Wildfire Plan O&M Expense – Washington-Share & System

Total Wildfire Plan - Washington and System (Expense)						
	Washington			System		
	Distribution	Transmission	Total	Distribution	Transmission	Total
2020	930	577	1,506	1,536	880	2,416
2021	2,437	868	3,305	4,047	1,325	5,372
2022	3,199	1,050	4,249	5,316	1,602	6,918

Using this information, Ms. Andrews incorporates the incremental costs associated with the Company's Wildfire Plan within her Electric Pro Forma Study. First, using a prorated amount of calendar 2021 and 2022 expenses expected during the rate period (October 1, 2021

1 through September 30, 2022), Ms. Andrews includes \$4.025 million (Washington-share) of
2 operating expenses.⁸ Next, Ms. Andrews includes Washington's share of Wildfire Plan
3 capital projects transferring to plant between August of 2020 and December 2021 of \$13.9
4 million⁹. Capital additions in 2022 are expected to transfer during the second half of 2022 and
5 therefore have been excluded from this case. The overall electric revenue requirement
6 included in this case associated with these costs is approximately \$5.7 million. Approval of
7 these proposed incremental costs is an important element of the Company's wildfire program
8 and helps support the level of wildfire mitigation efforts proposed in the Company's Wildfire
9 Plan.

10 **Q. What other request of this Commission have Avista filed, or included in**
11 **this proceeding, with regards to Wildfire recovery do you wish to discuss?**

12 A. As discussed by Ms. Andrews, in addition to the Wildfire Plan costs pro
13 formed into the Company's Electric Pro Forma Study, Avista also filed with this Commission
14 on November 1, 2020 (concurrent with the filing of this general rate case) a deferral
15 application requesting approval to defer wildfire expenses incurred in 2021 prior to new rates
16 going into effect. The expected amount to be deferred during the nine-month period January
17 1, 2021 through September 30, 2021 is estimated at \$2.6 million.¹⁰

⁸ Wildfire risk tree and other expenditures are incremental to existing vegetation management expenses included in the 2019 test period, with the exception of approximately \$265,000 (WA/ID). The calculation of the operating expense included in this case was calculated as follows for the rate year beginning on October 1, 2021: (\$3.305 million * 3/12 (2021) + \$4.249 million * 9/12 (2022)), allocated to Washington and offset by existing vegetation management expense included in the 2019 test period of \$184,000 (WA share), totals \$4.025 million. See Andrews workpapers for analysis.

⁹ \$13.5 million on an AMA basis for the rate effective period.

¹⁰ On May 29, 2020 the Company filed with the Idaho Public Utilities Commission (IPUC), in Case No. AVU-E-20, its application requesting the Commission issue an order authorizing approval to defer, for later rate-making treatment the incremental costs the Company will incur associated with its Wildfire Resiliency Plan. On August 26, 2020, the Staff of the IPUC issued comments supporting deferral of the Company's incremental wildfire expenses. A final Commission Order is anticipated in November 2020.

1 Lastly, Ms. Andrews also discusses the Company’s proposal to create a Wildfire
2 balancing account to track expenses over the 10-year life of the Wildfire Plan. As shown in
3 Table No. 3 above, the O&M expenses on a system basis over the 10-year life of the Wildfire
4 Plan increases from \$2.4 million in 2020 and \$5.4 million in 2021 to a maximum increase of
5 \$7.4 million in 2024, before declining over the remaining years to \$5.1 million in 2029,
6 producing a “bell-shaped” curve. Given this expected “bell-shaped” curve of expenses, in
7 order to protect customers by ensuring customers pay no-more/no-less of the O&M costs of
8 this Wildfire Plan, the Company believes it prudent for the Commission to establish a two-
9 way balancing account for these costs. By establishing a base level of expense in this case,
10 and each subsequent general rate case following, and allow the Company to track and defer
11 the differences up or down over time, will ensure customers pay no more than the actual
12 wildfire expenditures over the 10-year plan.

13 Approval by this Commission to defer the incremental expenses associated with the
14 Company’s Wildfire Plan prior to new rates going into effect, as well as track the on-going
15 expenses versus an approved base over the life of the 10-year plan, would allow the Company
16 to set these costs aside for an opportunity to recover these costs in future rate proceedings.
17 Any costs deferred and set aside for a future period will provide this Commission and other
18 parties the opportunity to review the costs after-the-fact and make a prudence determination
19 prior to the Company receiving recovery of the prudently incurred costs through retail rates.

20 **Q. Does this conclude your pre-filed direct testimony?**

21 A. Yes.