

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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ANNA M. SCARLETT

REPRESENTING AVISTA CORPORATION

Avista Utilities Wildfire Risk Mitigation

A Concept Paper for consideration under the Department of Energy's Grid Resilience and Innovation Partnership (GRIP) Program

Topic Area 1: Grid Resilience Grants (40101(c))

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Anticipated Team Member Organizations

- Avista's Asset Maintenance and Grid Hardening Teams (Design)
- Wilson and Titan Construction Companies (Construction)
- Washington (WUTC) and Idaho (IPUC) Utility Commissions (Regulatory)
- Spokane, Coeur d' Alene, Nez Perce, and Colville Confederated Tribes (Regulatory)
- Avista Wildfire Steering and Executive Committees (Governance)
- Avista Support Functions (Supply Chain, Contracts, Environmental, Real Estate, Legal, Engineering, Electric Operations, Regulatory & Rates, and Wildfire Resiliency)

Project Location

This grant will supplement Avista's Grid Hardening Program to mitigate fire risk over 2,746 miles of electric distribution line located throughout Northeast Washington and North Idaho.

December 16, 2022

All information in the concept paper is confidential and proprietary to Avista Corp.



**U.S. DEPARTMENT OF
ENERGY**

Project and Technology Description

Executive Summary of Eligible Uses and Technical Approaches

Avista Utilities provides energy to customers across 30,000 square miles and three northwestern states. We provide electricity to approximately 400,000 customers throughout Northeast Washington and North Idaho. We are a vertically integrated utility pairing hydro, thermal, and renewable generation resources with high voltage transmission and electric distribution infrastructure. Rooted in the renewable energy we have generated since our founding in 1889, Avista is proud of our history meeting the energy needs of customers across the Pacific Northwest.

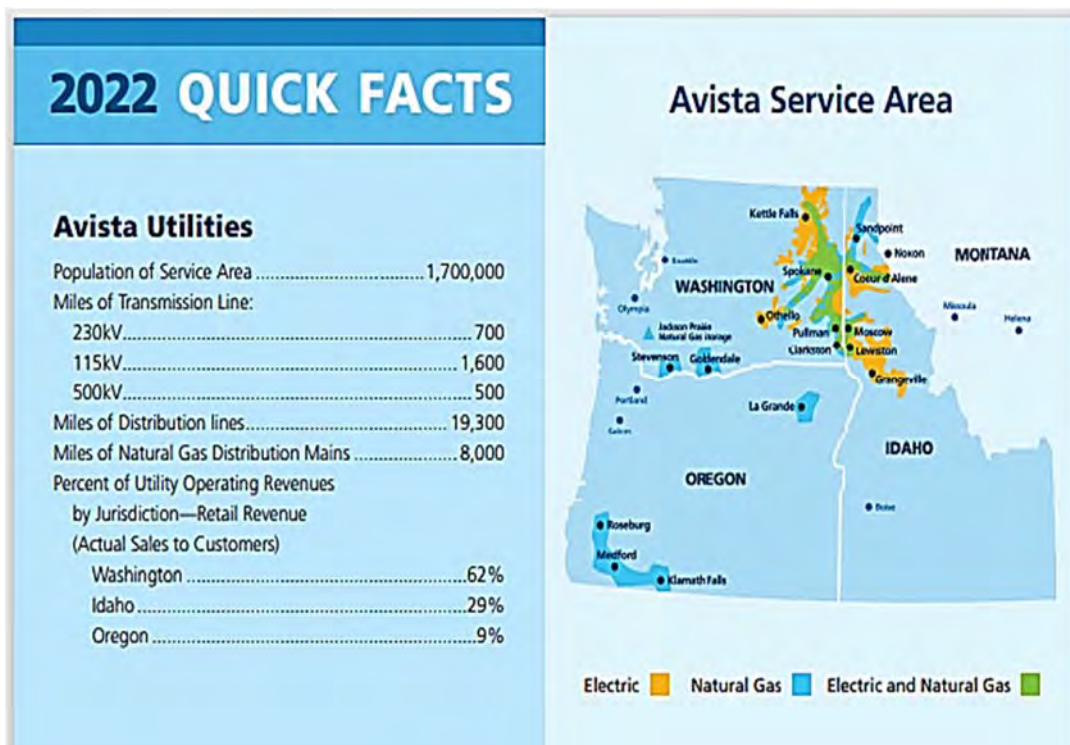


Figure 1. 2022 Avista Quick Facts

Throughout our 132 years of operating experience, we have responded to numerous large wildfire incidents including the 1905 Spokane Fire, the 1910 Big Burn, and recent events such as the 1991 Fire Storm and 2020 Labor Day fires. As climate change worsens, the frequency and severity of wildfires presents a growing and critical risk to our infrastructure and delivery of power to our customers.

In June of 2020, Avista published a [Wildfire Resiliency Plan](#) and committed to a multi-year effort to mitigate the risk of utility-sourced wildfires. The Plan builds upon Avista’s experience of responding to wildfire events and efforts to build a more resilient grid. Avista’s Wildfire Plan describes programs and processes to reduce wildfire risk by upgrading infrastructure in high fire-threat areas, building upon vegetation programs with a focus on identifying and removing danger/hazard trees, leveraging technology to enhance system protection, and partnering with emergency response and firefighting agencies on activities such as fuel reduction projects.

The 10-year cost estimate (2020-2029) to execute Avista's Wildfire Plan stands at \$410 million and includes the major elements listed below:

- **Grid Hardening** – Upgrading 2,746 miles of electric distribution lines in high fire threat districts and increasing transmission grid resiliency by replacing wood poles with steel poles in fire risk areas. Avista's goal is to invest \$250 million to upgrade facilities between 2020 and 2029.
 - **Transmission Wood to Steel Pole Conversion** - \$38 million
 - **Distribution Grid Hardening Construction** - \$186 million
 - **Distribution Grid Hardening Pole Inspection** - \$26 million
- **Risk Based Vegetation** – Identifying and removing dead, dying, and diseased trees within strike distance of all transmission and distribution lines and to inspect facilities annually. Avista's goal is to invest \$104 million to mitigate hazard/danger trees on 10,000 miles of powerlines.
- **Automate Distribution** – Modernizing distribution protection equipment and enhancing system protection during critical fire weather events. Avista plans to invest \$35 million to automate distribution equipment in high fire threat districts.
- **Emergency Response** – Partnering with firefighting agencies such as the Washington Department of Natural Resources, the Idaho Department of Lands, and Tribal Governments to fund fuel reduction programs such as Washington's [Wildfire Ready Neighbors](#). Avista's goal is to invest \$20 million in this area, which includes a program to help Avista customers remove unwanted trees near powerlines.

This transformational plan commits significant labor and financial resources toward reducing the risk of wildfire to Avista's customers and communities. However, due to financial limitations Avista will be unable to complete the distribution grid hardening program by the end of 2029 and will fall short by 693 miles of our 2,746-mile goal. Moreover, the plan does not currently include the undergrounding of overhead lines due to high costs. Even though undergrounding affords the maximum fire risk mitigation, converting existing lines to underground is cost prohibitive in most situations without outside funding. While Avista has conducted some small-scale undergrounding as part of the grid hardening program, the current percentage of undergrounding is less than 2 percent.

From January 1, 2020, through November 30, 2022, Avista has invested \$72,985,654 in the Wildfire Resiliency Program and another \$38,684,234 in support of distribution electric grid resiliency. This totals \$111,669,888 in a 35-month period.

For simplicity, estimates provided in this report are extrapolated from only the Distribution Grid Hardening Plan. This does not reflect Avista's total planned commitment in the Wildfire Resiliency Program from 2020 to 2029. At the time of this report, the 10-year wildfire program cost is \$410 million.

To close the gap in funding and transform electric service for thousands of Avista customers, Avista is requesting funding from the Department of Energy to upgrade nearly 700 miles of electric distribution lines including converting 173 of the 700 miles to underground facilities. Under this proposal, approximately 25% of the grid hardening scope could include converting overhead powerlines to underground systems. Federal funding would compress the project schedule, with 100% of the project complete by 2029. The total cost of this option is estimated at \$315 million. The grant portion request is \$100 million. Avista would self-fund the remaining cost.

Grant funding is assumed to run from 2024 to 2028 and would supplement Avista’s current resource plan. Avista would complete the grid hardening project in 2029 along with other elements of the Wildfire Resiliency Plan.

Later in this Concept Paper we will detail the physical, environmental, and financial challenges associated with replacing existing overhead powerlines with underground systems. Despite the challenges, undergrounding fully mitigates the risk of episodic wildfire events where high winds topple trees into powerlines during critical fire-weather days.

Wildland Urban Interface

The climate and fuel types in Avista’s service territory make this region vulnerable to large-scale events such as those witnessed during Labor Day of 2020. On September 7, 2020, a widespread wind event sparked fires throughout Washington, Idaho, and Oregon. In Avista’s service territory, 28 fires were reported and several of those fires resulted when trees fell into power lines. These fires caused widespread damage to hundreds of homes, burned tens of thousands of acres, severely strained community resources, and threatened human life. This event occurred just a couple of months after Avista published its initial Wildfire Resiliency Plan and serves as a stark reminder of how destructive wildfires can be. Completion of this project, including expedited grid hardening and the undergrounding of certain distribution lines, will drastically

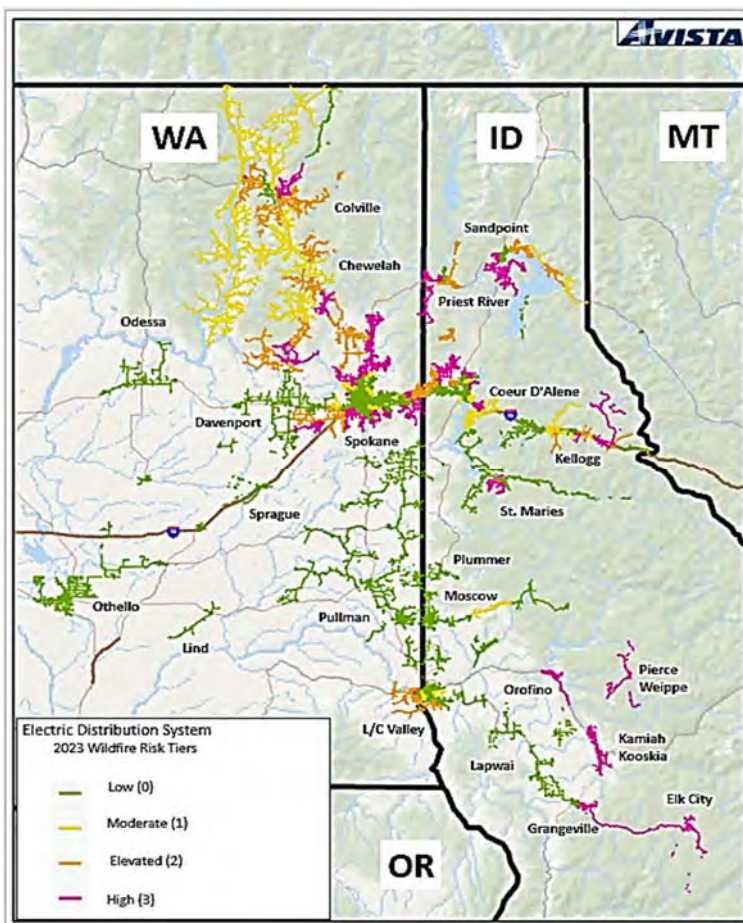


Figure 2. Avista’s 2023 Wildland Urban Interface

reduce the risk of wildfire and enhance the resilience of our infrastructure and reliability of our service.

Avista's grid hardening project specifically targets high fire threat districts across portions of Northeast Washington and North Idaho. Project areas were identified in 2019 using geospatial mapping techniques that combined the USFS's Wildfire Hazard Potential map¹ with Avista infrastructure. This fire risk map was updated in 2022 and added three datasets: 1) USFS Housing Unit Impact², 2) Avista's 5-year outage history, and 3) vegetation cover derived from satellite imagery.

Avista's Wildfire Urban Interface (WUI) map categorizes wildfire risk into low, moderate, elevated, and high zones. The combination of areas designated as elevated and high fire risk are included in the scope of the grid hardening projects. Areas shown in green and yellow on the map indicate low to moderate fire risk and align with sparsely populated areas (low fire impact) or cityscape zones (low fire probability). Areas shown in orange and pink are at high fire risk and account for 36% of the electric grid.

Communities in Washington such as Chewelah, Colville, and Clarkston are among those with elevated fire risk together with communities in Idaho such as Sandpoint, Rathdrum, Orofino, Kamiah, and Elk City.

Avista has already allocated \$186 million to upgrade electric distribution facilities in these areas. Another \$26 million is allocated to inspect these facilities before grid hardening construction. Still, this level of investment is not enough to complete the full 2,746 miles by the end of the decade.

By supplementing Avista's grid hardening project with federal grant funding, 100% of these high-risk areas can be treated by the end of 2029 with the addition of undergrounding certain facilities to maximize the customer benefits and grid resiliency.

¹ USFS Wildfire Hazard Potential

² USFS Housing Unit Impact

Regional Resilience and Energy Strategies

Avista's 2020 Wildfire Resiliency Plan identified distribution grid hardening as the primary measure to reduce the frequency of spark ignition events that could result in a wildfire. Many peer utilities such as PG&E, San Diego Gas & Electric, Idaho Power, Puget Sound Energy, and others include distribution grid hardening in their wildfire strategies.

Avista's 5-year average for overhead equipment failures stands at 526 per year. In 2022, Avista experienced 607 overhead equipment failures. This is an important metric because equipment failures are manageable and generally unrelated to weather.

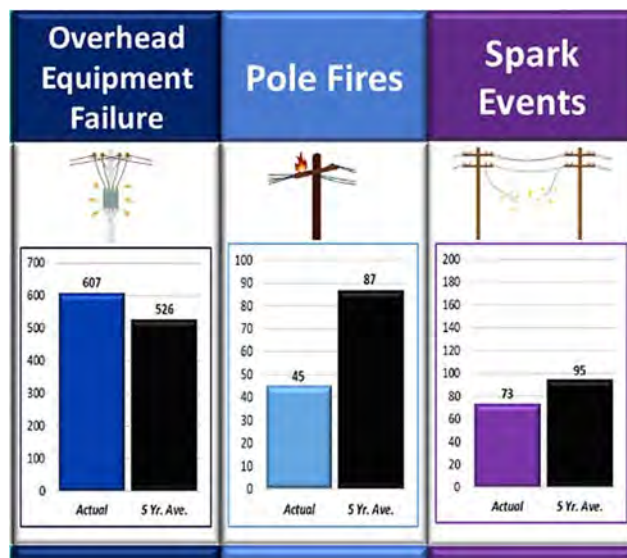


Figure 3. Avista Wildfire Metrics, October 2022

Another important metric is the number of pole fires that occur each year. Utility pole fires occur during late summer when environmental contaminants such as dust and air pollution build up on insulators. This increases the amount of leakage current and can be sufficient to ignite wood poles. Avista's 5-year average for pole fires is 87, with 45 measured in 2022. However, in extended drought periods like those experienced in 2021, the number of pole fires can increase substantially. In 2021, Avista recorded 154 pole fires. Avista also tracks spark ignition events, including electrical incidents that cause visible charring or burn marks and those that result in fire ignition. The 5-year average for spark ignition events is 95. In 2022, 73 spark ignition events were recorded.

These metrics present an important part of Avista's wildfire effort, representing the strong possibility of a wildfire under the right weather conditions.

One of the measures that Avista uses to determine the economic impact of service disruptions is the [Interruption Cost Estimate](#) (ICE) as defined by the Department of Energy. The ICE calculation is used to assess the economic impact on communities and their residents associated with power outages. Avista's ICE value is \$116 per customer per hour. For instance, a 2-hour power outage that impacts 30 customers would result in an interruption cost estimate of $\$116 \times 2 \text{ hours} \times 30 \text{ customers} = \$6,960$. Based upon Avista system averages, most unplanned power outages impact around 50 customers for 3 hours. The ICE formulation shows the annual economic loss associated with overhead equipment failures, pole fires, and spark ignition events.

Table 1 Avista Electric Outage Rates

Outage Type	Outage Rate (#) per Year	Annual Economic Impact (\$)
Overhead Equipment	526	\$9,152,400
Pole Fires	87	\$1,513,800
Spark Ignition	95	\$1,653,000

However, these values only reflect the economic opportunity associated with electric disruptions. Financial risks including property damage, community safety, and fire suppression can exceed those values and can cost hundreds of millions or even billions of dollars.

In 2022, Avista conducted a wildfire risk assessment and determined the cumulative 10-year financial risk for the Company and its customers to be between \$490 million and \$4.7 billion. Between 2002 to 2020, Washington State and Idaho experienced the second and sixth most burned acres per square mile of land according to the EPA’s [Climate Change Wildfire Indicator](#).

In California, estimated losses from the 2018 Paradise Fire (Camp Fire) exceeded \$10 billion³. While only 10% of California wildfires are attributable to utility operations, 50% of the state’s deadliest fires were caused by utility infrastructure during extreme wind events.⁴ The catastrophic outcomes that California has experienced are becoming critical risk for utilities in the Pacific Northwest, including Avista.

Avista is working with a diverse group of stakeholders including city, county, state, and federal firefighting and emergency response agencies together with peer utilities throughout California and the Pacific Northwest. In fact, Avista has hosted several meetings with neighboring utilities including Puget Sound Energy, Portland General Electric, PacifiCorp, Idaho Power, Chelan Public Utility District, Tacoma Power, and NorthWestern Energy. In 2022, Avista developed a community outreach framework that raised awareness and solicited feedback from fire agencies, emergency first responders, and Avista customers. Also in 2022, Avista warned customers on eight separate occasions that system protection levels were increased because of critical fire-weather conditions. Avista has worked with San Diego Gas & Electric, the National Weather Service, Idaho Power, and others to create a 7-day fire-weather monitoring system to assess the short-term risk of utility involved wildfires. The graphic (inset right)



Figure 4. Avista Fire Weather Monitoring System for the Week of 9/18/22

³ National Interagency Fire Center

⁴ www.cpuc.org

illustrates Avista's fire-weather dashboard. This monitoring system aligns system protection settings with fire-weather conditions.

Grid Benefit Outcomes

As mentioned, Avista plans to upgrade 2,746 miles of distribution lines located in high fire-threat areas. These upgrades aim to reduce the number of overhead equipment failures and pole fires. Specifically, the following treatments are included in the grid hardening program:

Treatment Prescription	Expected Benefits
1. Replace wood crossarms with fiberglass units	Fully mitigate pole fires
2. Replace small copper wire conductor	Reduce conductor failure rates
3. Install animal guards	Reduce incidents where animals such as birds and squirrels make electrical contact with energized equipment
4. Replace wood poles with steel in high value locations	Reduce the risk of wildfire damage to critical structures such as highway and river crossings
5. Add bail type connectors to 'hot-tap' electrical connections	Reduce the rate of thermal failures at transformers and lateral circuit connections
6. Site specific: convert to underground	Where physically feasible and economically viable, convert overhead lines to underground cables

Items 1 through 5 are included in all Avista grid hardening projects. In 2022, Avista upgraded 181 miles of distribution lines through grid hardening at an average cost per mile of \$87,451 and a total annual cost of \$15,845,000. Since 2020, Avista has hardened 388 miles (14% of the 2,746 total miles) at a cost of \$31 million.

Though Avista does not expect to realize measurable results from grid hardening until years four or five, we know that replacing conventional wood arms with fiberglass cross arms sharply reduces the risk of poles. In fact, Avista has never experienced a pole fire on a structure with a fiberglass crossarm. Likewise, analysis indicates that animal guards reduce the likelihood of electrical contact by as much as 90%.

While items 1 through 5 are embedded directly into the program, measure 6 (converting overhead lines to underground) is only performed on a case-by-case basis. The cost to underground an existing overhead powerline is approximately five times the cost to perform grid hardening (items 1-5). Though the undergrounding of powerlines fully mitigates wildfire risk, it remains cost prohibitive in most circumstances. However, if Avista is awarded federal funding we will be able to convert 173 miles of overhead facilities to an underground cable.

Benefits of Underground Electric Systems

Utilities began installing underground power cables as early as 1960. At the time, the initial costs of cables and equipment were considerable, and the quality of cable was quite low. The expected life of those generation-1 cables was 10-20 years. Today, the expected life of cables is on-par with overhead systems. Many utilities have standardized using underground cables in new subdivision housing and commercial developments. In these situations, the cost of excavation is shared between many utility providers, and physical barriers such as pavement, concrete, and underground pipes are avoided. While underground systems do experience failures, the incident

rate is much lower than for overhead systems. Avista’s outage data indicates that overhead incidents occur at a rate 50 times higher than that of underground facilities.

From a fire risk perspective, undergrounding is the ultimate grid-hardening tool. However, utilities are not converting their overhead systems to underground because of the enormous cost. Converting electric circuits in developed landscapes presents both physical and environmental challenges. Excavation systems are very disruptive to roadways and to underground utilities such as sewer, telecom, natural gas, and water.

In addition to the benefits of reducing fire risk, undergrounding facilities also increases electric reliability. Avista tracks service reliability metrics for all customers including Customers Experiencing Multiple Interruptions (CEMI3).⁵ Avista’s CEMI3 limit is 6.74% and is used to track the percentage of customers that experience 3 or more electric disruptions in a calendar year. However, customers that live in some remote areas often experience 10 or even 20 outages per year. Avista’s Wildfire Risk Mitigation project outlined in this Concept Paper is geared towards wildfire risk reduction and improving service reliability. If completed, this project will be transformative for the communities we serve.

Impact and Scalability

Federal investment in this project would reduce the risk of innovative technology and allow for at-scale completion of a transformational wildfire risk mitigation project with significant benefits for underserved communities.

As previously noted, the 10-year cumulative financial risk of wildfire in Avista’s service territory is up to \$4.7 billion and Avista plans to invest \$410 million to help mitigate the risk of utility-involved wildfires. The risks of climate change (such as drought), extreme fire weather events

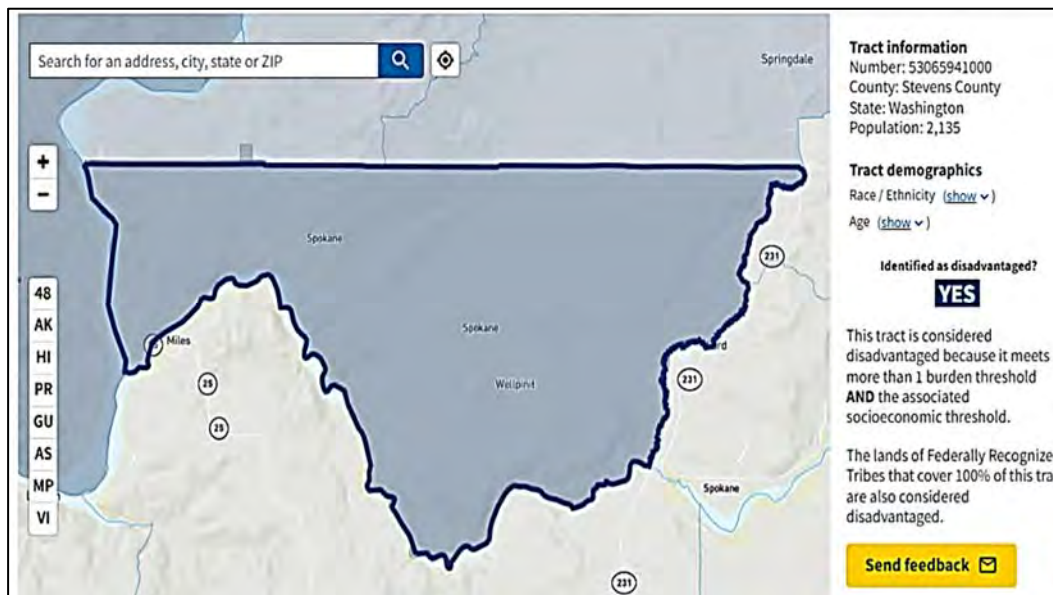


Figure 5 Spokane Tribe Reservation as shown on the CEQ Economic Justice Screen Tool

⁵ The ‘3’ indicates customers experiencing 3 or more outages in a calendar year.

(such as wind), and housing trends can be mitigated through Avista’s Wildfire Risk Mitigation project. Over 100,000 of Avista’s electric customers live in high fire threat districts and human development in the wildland-urban interface continues to increase. In fact, from 1990 to 2010 housing in WUI zones rose by 43% according to government reports. ⁶

More than 65% of Avista’s high fire threat districts coincide with 2010 census tracts that are “overburdened and underserved” according to the Council on Environmental Quality’s (CEQ) Climate and economic Justice Screening Tool. ⁷ Data from the Screening Tool also shows how Avista serves tribal areas of the Spokane, Confederated Colville, Nez Perce, and Coeur d’Alene Tribes. For example, the area north of Spokane and east of the Columbia Rivers is managed by the Spokane Indian Tribe and served by Avista. In fact, Avista is currently working on a large grid hardening project on the Spokane Indian Reservation.

In 2022, Avista employed eight contract line crews to perform upgrades on 181 miles of distribution lines. In 2023, the mileage target rises slightly to 195, and in 2024 the value peaks at 244 miles. However, at current production and funding rates, Avista will fall short of its goal to complete all wildfire projects before the end of the decade. At current production and funding levels, it will take an additional 4 to 5 years to complete the distribution grid hardening project.

Federal grant resources would help close this funding gap and provide additional resources to convert 173 miles of overhead powerlines to underground systems. Avista has assembled a design team led by project manager Robb Raymond who recently led Avista’s Automated Meter Infrastructure (AMI) effort to deploy digital smart meters to all Washington natural gas and electric customers. Raymond leads a team of project designers who are supported by in-house real estate, environmental, supply chain, and contracting personnel.

Avista is requesting grant funding for an additional 693 miles of grid hardening from 2024 through 2028. Also, 25% of the work would convert 173 miles of overhead lines to underground cables. Grant funding represents a 40% overburden on design and construction resources. The organizational chart shown on the right illustrates the increase in design and line construction resources. Avista estimates that it would add 2 to 3 design resources and 3 to 4 line construction crews if awarded grant funding.

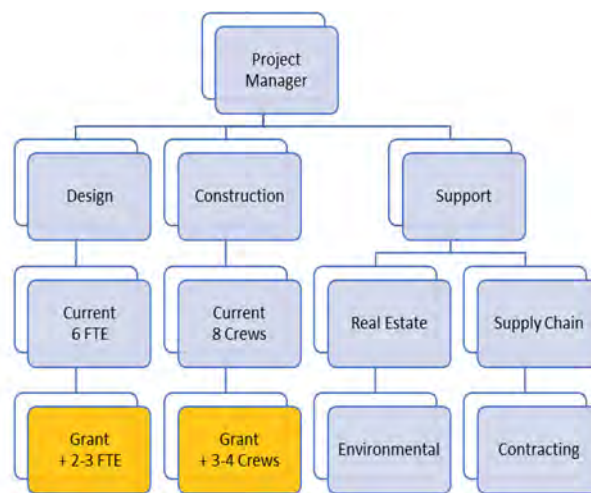


Figure 6. Avista Grid Hardening Organizational Structure

⁶ WUI: A look at issues and resolutions, June 2022, FEMA & US Fire Administration

⁷ [Explore the map - Climate & Economic Justice Screening Tool \(geoplatform.gov\)](https://geoplatform.gov)

Financial Impact of the Grant

Avista plans to invest \$186 million from 2020 through 2029 to upgrade powerlines in high fire threat districts. Initial estimates to harden these lines were projected at \$67,734 per mile (\$67,734/mile X 2,746 miles = \$186 million). Although 2020 costs indicated a cost per mile of only \$51,066, actual costs in 2021 and 2022 ranged between \$81,000 and \$88,000. For the purposes of budget estimates for this Concept Paper, the average cost per mile from 2020 to 2022 was used along with a cost escalation factor of 3.5%. Additionally, Avista estimated an approximate fivefold increase to convert overhead facilities to underground rather than upgrading existing facilities.

If Avista's resource plan is projected out based on actual and estimated costs from 2020 through 2029, 693 miles will remain untreated and deferred to the 2030-2034 timeframe. By utilizing a grant period from 2024-2028 (5 years) and supplementing the existing plan, federal funding will allow Avista to complete all grid hardening activity by the end of 2029.

Grant Funded Option – Compress Schedule & Underground 25% of Facilities

Under the project, 25% of 693 miles of powerlines could be converted to underground cables. This equates to 173 miles converted to underground with the remaining 520 overhead miles reinforced between 2024 and 2028. Concurrently in this time period, Avista would perform grid hardening on another 1,215 miles of overhead powerlines.

This is a preferred option because it both reduces wildfire risk to all customers by the end of the decade but also significantly increases service reliability to customers, some currently experiencing more than 20 power outages per year. The total project cost (2020-2029) for this work is \$314,872,708. Avista's grant request of \$100,000,000 (2024-2028) represents approximately 32% of the total project. Federal funding would leverage significant funding from Avista above minimum cost-share requirements of Grid Resilience Grants program. Avista anticipates providing matching funding in the amount of \$214,872,708, or approximately 68% of the total project cost.

Leveraging Non-Federal Investment

In addition to the non-federal matching funds that Avista will provide, this project presents a unique opportunity to utilize federal grant funding to the maximize benefits to customers and communities. Avista's investment demonstrates our commitment to mitigating wildfire risk through distribution grid hardening according to our Wildfire Resiliency Plan, regardless of outside assistance. As previously detailed, federal funding will achieve significant benefits by expediting and enhancing these investments, but currently Avista is working to complete improvements according to the budget, production, and project completion rates shown below.

Avista Grid Hardening	2020	2021	2022	2023	2024
Avista Budget	\$3,115,000	\$11,848,000	\$15,845,000	\$17,650,000	\$22,900,000
Production (miles)	61	146	181	210	264
% Project Complete	2.2%	7.5%	14.1%	21.8%	31.4%

2025	2026	2027	2028	2029	Total	
\$22,900,000	\$22,900,000	\$22,900,000	\$22,900,000	\$22,900,000	\$185,858,000	Deficit
255	246	238	230	222	2,053	693
40.7%	49.6%	58.3%	66.7%	74.8%	74.8%	

Throughout our work, actual grid hardening costs have exceeded initial estimates due to supply chain issues and adjustments based on condition-based costs. In many situations, powerlines subject to grid hardening must also be upgraded to accommodate the higher tensions associated with modern steel reinforced, aluminum conductors (ACSR). Although Avista designers are only targeting areas containing 'small copper wire,' upgrading wire size from 6A copper to #4 ACSR increases the strain and tension on poles and attachments. In some cases, existing poles and hardware must be replaced in addition to grid hardening scope. At current funding levels, this will produce a deficit of 693 miles at the end of 2029. **Closing this deficit is the primary focus of this grant application.** By awarding Avista this grant, all powerlines in high threat fire districts will be hardened by 2029.

Future grid hardening costs are based on actual costs measured between 2020 and 2022. All future year costs are subject to an annual cost escalation factor of 3.5%. The estimated costs per mile for overhead and underground grid hardened facilities are shown below.

Cost Forecast (3.5% escalation)	2020	2021	2022	2023	2024
Overhead Facilities Cost Per Mile	\$51,066	\$81,151	\$87,541	\$83,879	\$86,815
Underground Facilities Cost Per Mile	\$255,328	\$405,753	\$437,707	\$419,396	\$434,075

2025	2026	2027	2028	2029
\$89,853	\$92,998	\$96,253	\$99,622	\$103,109
\$449,267	\$464,991	\$481,266	\$498,111	\$515,544

Summary

Avista is requesting federal grant funds to supplement ongoing efforts to reduce fire risk across Northeast Washington and North Idaho. Avista plans to invest \$390 million over a 10-year period from 2020 to 2029 but even at this budget level, resources are not sufficient to complete 100% of distribution grid hardening by the end of 2029.

Avista is requesting supplemental funding to harden an additional 693 miles of distribution circuits. The grant funded option involves converting 173 miles of overhead facilities to underground systems and completes grid hardening on the remaining 520 miles. The grant request for this proposal is \$100,000,000. By utilizing a grant period from 2024-2028 (5 years) and supplementing Avista's existing plan, federal funding will allow Avista to complete all grid hardening activity, including undergrounding, by the end of 2029.

Community Benefits Plan

The Avista Utilities Wildfire Risk Mitigation project will be implemented to maximize community benefits under the plan outlined below. In addition, the project will build upon Avista's proactive efforts under our [2022 Avista Corporate Responsibility Report](#), which details how Avista is already leading the industry to promote high-quality and high-paying jobs; advance workforce development; support diversity, equity, inclusion, and accessibility for historically underrepresented groups; and empower customers to receive the best information possible to benefit from transformational technology.

Community and Labor Agreements

This project will leverage Avista's longstanding positive relationships with the local labor organizations representing much of our workforce. Currently, 38% of our Avista employees are covered by collective bargaining agreements represented by the International Brotherhood of Electrical Workers (IBEW) Local 659 (Oregon) and Local 77 (Washington/Idaho). To implement the project, Avista will draw upon a workforce consisting largely of members from these organizations including technicians, operators, and line workers. We plan to include letters of support from Local 77, craft training leadership, and skilled tradespeople for the full application to illustrate support for the project proposal.

The Wildfire Risk Mitigation project will also provide opportunities for union labor in smaller and rural communities that comprise much of Avista's service area. Our strong partnership with labor organizations will allow us to complete and operate this project through local hiring while supporting good-paying union jobs in these underserved areas. One example is our common use of traffic control for projects. In this instance we pay local contractors, including use of Tribal employment agencies, to source local individuals that are paid prevailing wages. Another example is our utilization of two primary line crew companies sourced out of Local 77 when we participate in construction activities.

Continuing partnership with our organized labor partners will also support recruitment of the next generation utility workforce through unique training opportunities on the innovative technology this project is based upon. Avista currently has 11 active registered apprenticeships between Local 77 and Local 659. In partnership with both organizations, we utilize Joint Apprentice Training Committees to continue improving the apprenticeship programs. With the support of Local 77, Avista also has a Craft Student Program, where high school students can apply to the program and receive high school credit while working part time alongside craft employees to learn about the apprenticeships and potential career paths. Project implementation will incorporate and leverage these programs to provide opportunities for learning on some of the utility industry's most innovative technologies.

Additionally, Avista maintains core principles to ensure a positive work environment and a mutually beneficial business relationship with our labor force. Avista's [Code of Conduct](#) and [Commitment to Corporate Responsibility](#) provides greater detail and examples of our commitment to workers' rights have led to Avista's history of positive relationships with labor organizations. Some of Avista's core principles include:

- Respect freedom of association and the right to collectively bargain.
- Ensure fair wages for workers in compliance with all local labor and compensation laws.
- Ensure equal opportunity to qualified individuals in employment decisions and practices.
- Uphold the rights of racial and ethnic diverse groups, women, and other protected groups' rights in the workplace.

Job Quality and Workforce Development

Emerging grid technologies, such as those applied in grid hardening efforts and the situational awareness tools Avista is integrating as part of the Wildfire Risk Mitigation project, require different processes and skills to deploy, operate, and maintain compared to traditional infrastructure. Avista will employ standards-based technology approaches to create consistency in work practices and provide hands-on training to close the gap between design and operations. The skills to deliver the future electric infrastructure are changing, but the core values remain the same. The jobs in energy are rewarding and important to society, so developing the next-generation workforce is imperative.

As mentioned above, we currently provide 11 active apprenticeship programs. These apprenticeship programs, which typically take 2–4 years to complete, provide participants with classroom, workshop, and on-the-job training to gain the background and experience required to advance within their fields while maintaining their employment with Avista. These apprenticeship programs represent a wide range of focus areas across our operations, ranging from electrical mechanics and linemen to distribution operators and communication technicians.

Avista's median pay across all job types is more than 2.3 times the median pay for all job types in the communities we serve, and the resources utilized to deploy the wildfire risk mitigation project will continue to be high quality jobs with high pay relative to other jobs available locally. Retaining the skilled workforce also depends on training them to address the needs of the future utility. In partnership with craft training and labor organizations, this proposal includes training and workforce development directly aimed at supporting critical jobs for the future.

Diversity, Equity, Inclusion, and Accessibility

Avista is committed to conducting business ethically and honestly and providing a trusting and respectful work environment centered on equity, inclusion, and diversity (EID) for all. In 2022, Avista released its [EID strategic plan](#), which details strategies, goals, and aspirations — the culmination of two years of focused work by Avista's Our People Council. The goals of the Our People Council are to improve the employee experience and culture at Avista and to create line of sight for employees and the Our People portion of Avista's corporate strategy to support a diverse and engaged workforce.

The foundation of equity and inclusion will support engagement for all and enable diversity to flourish. Avista's intention is to attract, develop, and retain employees today and into the future who reflect our communities and enable company success. At Avista, we believe that diversity makes us stronger as a company and a community. We believe that when we have

diversity in backgrounds and experiences, we gain the benefit of different ways of looking at our business, which can lead to innovative breakthroughs for our customers.

EID efforts go well beyond the internal practices at Avista. In Spring 2021, Avista formed the Equity Advisory Group (EAG) to advise Avista on equity issues including, but not limited to:

- Designation of Vulnerable Populations.
- Designation of Highly Impacted Communities.
- Development of Customer Benefit Indicators.
- Recommendations for the equitable distribution of energy and non-energy benefits and reduction of burdens to Vulnerable Populations and Highly Impacted Communities.
- Identification of barriers and solutions to public participation

Avista's EAG includes representatives from organizations such as environmental justice, public health, tribes, Highly Impacted Communities, Vulnerable Populations, youth, and LGBTQ+.

Through the partnership with the EAG, Avista has identified barriers to participation and accessibility for our customers and communities. Whether it is the transformation to a cleaner utility, wildfire resiliency strategies, or current and new projects or programs, Avista is steadfast in ensuring all customers have access by reducing barriers to participation and accessibility. Avista is currently concluding a 17-week project outlining barriers to participation in programs services, strategies for reducing those barriers, and tools for increasing participation and accessibility through their partnership with Public Participation Partners (P3). P3 develops innovative, cost-effective methods for meaningful community engagement in the project planning process.

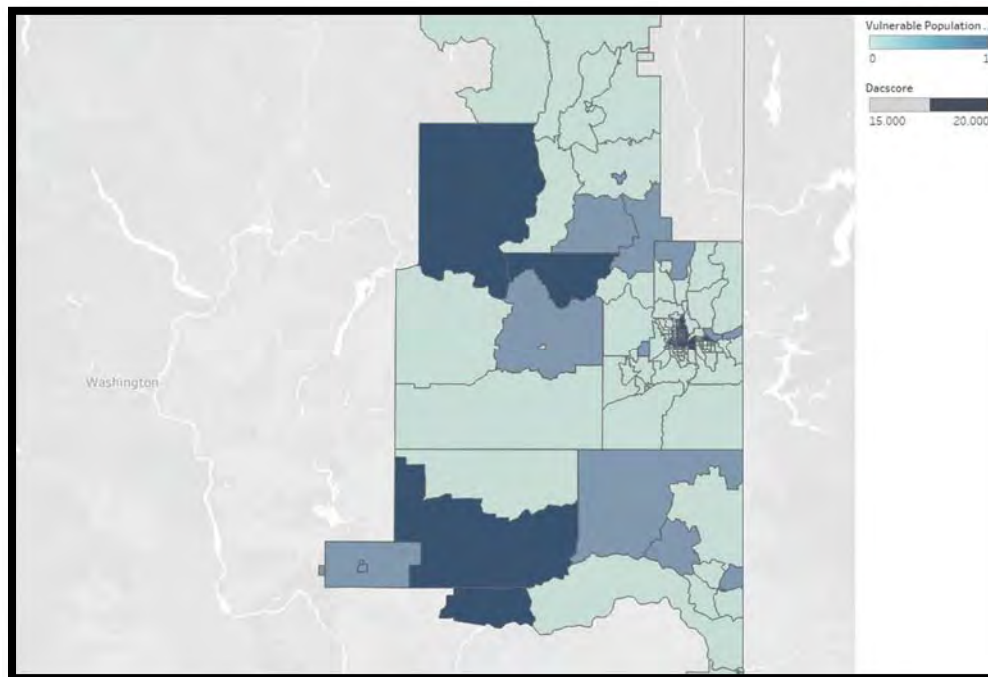
Avista will continue to implement further practices and comprehensive strategies to make considerable progress to support EID, participation, and accessibility efforts.

Justice 40 Initiative

To achieve the goals of the Justice 40 Initiative, the project will build upon Avista's ongoing efforts to improve our service for disadvantaged communities. The Justice 40 Initiative seeks to direct 40% of the overall benefits of certain Federal investments – including investments in clean energy and energy efficiency; clean transit; affordable and sustainable housing; training and workforce development; the remediation and reduction of legacy pollution; and the development of clean water infrastructure – to flow to disadvantaged communities (DACs). Avista's [Clean Energy Implementation Plan](#) (CEIP) and identification of Named Communities is directly aligned with the targeted outcomes of the White House's Justice40 Initiative and will ensure that delivery of this project provides well over 40% of benefits to disadvantaged communities within our service area.

Since 2019, Avista has dedicated resources to achieving the goals of Washington State's Clean Energy Transformation Act (CETA, RCW 19.405), which encourages investment in Named Communities by helping to ensure all customers equitably benefit from the transition to clean energy. In 2021, Avista released its CEIP, which outlines how Avista will meet or exceed directives of this legislation. Ensuring benefits are received by disadvantaged communities is the lynchpin of this plan.

In consultation with its Equity Advisory Group (EAG) and other advisory groups members, Avista determined which communities qualified as Vulnerable Populations within the areas Avista serves. The map below illustrates the intersection between the Energy Justice identified Disadvantaged Communities and the Avista identified Named Communities. The dark blue census tracts demonstrate a direct correlation between the identified DACs and Named Communities. The lighter blue census tracts show the additional Named Communities identified by Avista.

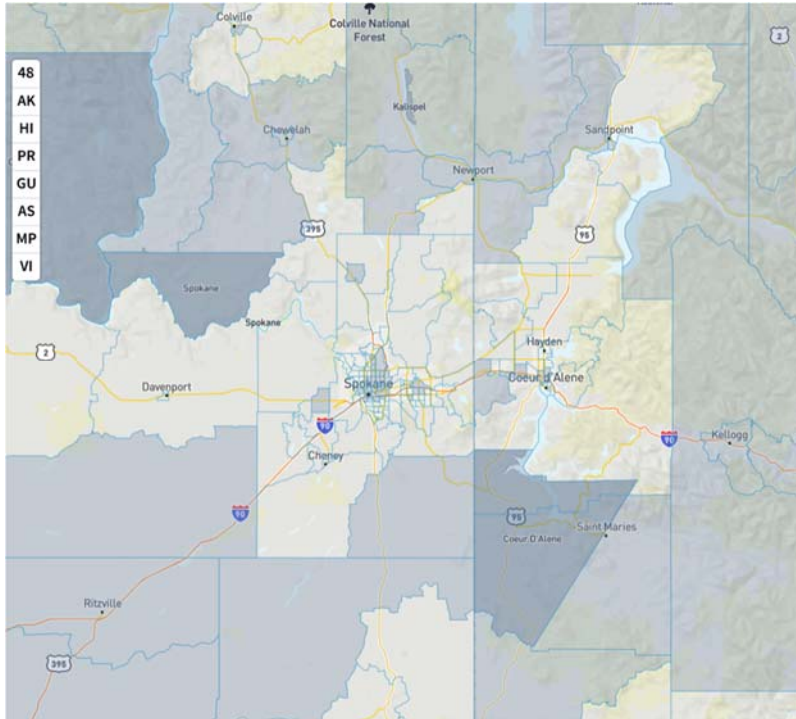


For Avista's residential electric service territory in Washington, 44.2% of households are in Named Communities. This equates to 119,708 households. For the purposes of the full application, Avista is working closely with the EAG to

fully develop and identify Highly Impacted Communities and Vulnerable Populations unique to the Company's service territory that may not be visible with the metrics utilized for the Washington DOH (Department of Health) map.

The methodology for identifying Named Communities in our Washington service territories was established in 2021. Similar methodologies will be applied to our Idaho and Oregon service territories in 2023.

The identification of customer barriers, development of workable solutions, and implementation of an effective multilingual communication strategy (among others) has been an ongoing process, but one that Avista believes to be integral to the success of the CEIP, along with the development of communications, customer outreach, and additional customer programs and projects.



Avista's Wildfire Risk Mitigation project will be implemented utilizing the concepts integral to the CEIP, with strategic decisions to maximize benefits for disadvantaged communities within our service area and helping to ensure that all customers, especially our most vulnerable, receive the information, communication, and support they need related to wildfire preparation, risk, and safety. As shown above by preliminary analysis from the Climate and Economic Justice Screening Tool, there are well over 20 federally identified disadvantaged communities in

our service area that will benefit from this project. While our entire electric customer base is comprised of more than 40% disadvantaged communities, improvements under the Wildfire Risk Mitigation project will be focused on high fire threat areas which contain historically underserved communities.

In Avista's Washington service territory, 1,044 of the 1,708 miles of powerlines reside in high fire threat areas identified as economically disadvantaged communities (61%). In Idaho, 794 miles of 1,038 miles are located in these communities (76%). Avista is identifying barriers to participation and accessibility for these customers and communities and is steadfast in ensuring that all customers have access to programs and utility-related information by reducing barriers to participation and accessibility. To guide these decisions, we will leverage our current advisory groups and local/regional community action organizations to identify the location and impact to the community.

- Equity Advisory Group
- Energy Efficiency Advisory Group
- Energy Assistance Advisory Group
- Distribution Planning Advisory Group

These efforts will be reflected in our wildfire outreach efforts going forward, especially in the areas of public safety and notification, but also in relation to providing information about our Wildfire Plan and its associated programs.

Addendum A

Avista's Experience with Large Scale Projects

Avista understands that one of the critical competencies a successful grantee must possess is the ability to quickly and efficiently ramp up management, engineering, and construction resources needed for timely and successful project implementation. Through more than 130 years of operations, Avista has the demonstrated experience and capabilities required to successfully implement these types of large infrastructure projects.

In 2010, the Company was successful in receiving two federal grants of \$37 million for the implementation of a distribution "smart grid" in Spokane and Pullman, Washington. In addition to grant-funded projects, the Company also recently completed a \$152 million project to install Advanced Metering Infrastructure (AMI) in its Washington electric and natural gas service areas, installing 423,000 meters. As another example of Avista's successful implementation of large-scale infrastructure projects, within our natural gas service territory Avista is replacing its Aldyl A natural gas pipe throughout Washington, Oregon, and Idaho.

In these and other experiences, Avista understands there are three crucial competencies an organization must have to be successful:

- A deep organizational understanding of the underlying technologies and fundamentals of the infrastructure in question.
- A demonstrated ability to acquire and effectively manage the resources needed to implement the project in a timely manner.
- A focus on the needs of customers and a demonstrated ability to ensure the investments provide a prudent and cost-effective solution to meet those needs. Avista has demonstrated these capabilities.

Understanding the Fundamentals of Planned Investment

Avista is a recognized leader in the field of wildfire preparedness among utilities in the Pacific Northwest. As explained previously in the Concept Paper, Avista has a deep understanding of the sources of wildfire risk to our system and to our customers and has begun to implement proven and approved mitigation measures that will help us cost-effectively mitigate and manage this risk. The infrastructure investments proposed outlined in this Concept Paper represent an acceleration of the distribution grid hardening project, the single largest element of Avista's Wildfire Resiliency Plan. As a successful grantee, we would have the financial resources to reduce wildfire risk to our customers, protecting both customers and the infrastructure that serves them.

Signature Project Examples

As noted, the implementation of exceptionally large projects requires an organization to acquire and manage technical and construction/implementation resources that exceed typical staffing levels. The number of employees in an organization is structured around anticipated demands of providing day-to-day service to customers in the most cost-effective way possible. This naturally

means it will not have sufficient resources to complete what are beyond more normative infrastructure projects. Large-scale infrastructure projects typically require the addition of contract resources. There is an entire skill set an organization must have to perform these tasks smoothly and efficiently. Avista has demonstrated these capabilities through the completion of a number of large-scale infrastructure improvements including the following projects.

Smart Grid

In our two smart grid investment grant projects, the Company designed and implemented a “Smart Circuits” program covering approximately 80 electric distribution circuits in the City of Spokane and a “Smart Grid Demonstration Project” in Pullman, Washington. The combined cost of these two grant projects was approximately \$75 million. The Smart Circuits program involved automating distribution circuits through the installation of modern circuit breakers, switchable capacitor banks, communications systems, and a computerized Distribution Management System (DMS). The project was designed to achieve benefits for customers by making the grid much more resilient, reducing outage duration, and saving energy through conservation voltage reduction. Conservation Voltage Reduction (CVR) helps customers lower their energy consumption and lower their energy costs.



Figure 7. Customer Equipment Deployed during the SG Demonstration Project

In Pullman, Washington, Avista installed communications and automation on select electric circuits and installed AMI meters as part of the Smart Grid Demonstration Project. We also worked with Washington State University to develop a microgrid for the campus area. In addition to the typical range of financial benefits delivered by AMI, voltage data was used to refine and improve energy conservation savings that could be achieved by CVR. In both projects, Avista carefully evaluated which investments could be executed via internal resources and which tasks should be completed by contractors. Avista provided effective engineering and construction expertise and oversight, as well as outstanding project management, to successfully complete both large projects on time, as described, and within budget.

Aldyl A

Avista's Aldyl A natural gas pipe replacement project is another example of a large infrastructure project that required significant project management oversight and external resources. This project started in 2011 and is expected to cost \$300 million over a twenty-year lifespan. The project will replace 700 miles of Aldyl A pipe in throughout Oregon, Idaho, and Washington. Avista understood that the expensive process of pipe replacement, is well outside the scope of day-to-day operations and would be best completed by specialized contractors rather than internal employees. During the project, Avista has demonstrated its ability to competitively source the most capable and cost-effective contractors, to manage the overall project very effectively, and to cost-effectively deliver promised benefits to our customers.



Figure 8. Natural Gas Pipe Installation

Advanced Metering Infrastructure

Lastly, Avista recently installed Advanced Metering Infrastructure (AMI) meters for our electric and natural gas customers served in the state of Washington. An investment of approximately \$150 million, this project involved the selection, installation, and integration of complex software systems; the evaluation, installation, and testing of communications systems; and the evaluation, selection, and installation of electric smart meters and natural gas meter modules. Like the Smart Grid grant projects, Avista carefully evaluated elements of the project that could be completed by internal resources and which elements would be best accomplished by specialized contractors. The project required comprehensive project management throughout its four-year implementation period. Avista evaluated and retained specialized contractors to work with Avista employees to evaluate, select, install, and integrate software application systems. Most of the work on the communication systems, in particular the field installation work, was completed by Avista employees, while the installation of smart meters and modules were completed with contract labor resources. The mix of specialized contractors and Avista employees was very effectively managed, resulting in the project being completed on time and within budget.

Experience, Equipment, and Competence

As noted, an organization must possess the ability to effectively complete large projects, whether grant-related or funded through conventional financing. But the ultimate success of such projects is judged by state regulators in determining whether customers' needs were sufficiently identified and met, and if they were met in a cost-effective manner. In regulatory parlance, the standard to which Avista is held accountable is referred to as "Prudence." For Avista to recover the cost of investments through our customers' rates, each investment must be prudent and, in our customers', best interests. Each of the large projects described above, in

addition to the investments made through the Wildfire Resiliency Plan, has passed successfully through a comprehensive prudence review by our state regulatory commissions. Avista's Smart Grid Investment Grant projects were both deemed to have met the needs of our customers and were delivered in a prudent and cost-effective manner. Likewise, the Aldyl A pipe replacement project has been the subject of numerous prudency and regulatory reviews conducted in Oregon, Idaho, and Washington. In each instance, the project successfully addressed significant risks to customers and was efficiently and cost-effectively delivered. In its most recent prudence evaluations, Avista's AMI implementation was affirmed to have been made in its customers' best interest, resulting in a full and comprehensive use of AMI capabilities, and was cost-effectively and timely implemented.



Figure 9. A Wildfire in Avista's Service Territory Threatens Infrastructure

Avista's Wildfire Resiliency Program has been through similar prudence reviews in both Idaho and Washington and was found to be responsive to the risks caused by wildland fires. Avista's Wildfire Plan was the first such plan filed with utility commissions in Idaho and Washington. The Company has been recognized as an industry leader in the Northwest in wildfire planning and risk mitigation. The Company's identification of risks, the evaluation of effective treatment measures, and the overall cost-effectiveness of the program have been deemed by regulators to be prudent and in our customers' best interest.

Summary

An organization must possess the ability to effectively complete transformational projects, whether funded by grants or conventional financing, in a manner that optimizes the deployment of in-house and contractor labor, efficiently secures, and manages required labor, and passes the prudence test of being in the customers' best interest. In the projects described above, Avista has demonstrated an ability to successfully execute large projects that exceed its resources, scaled for normal operations, and timely deliver the investment in a manner that meets its contractual obligations and prudence requirements. Avista is well-equipped to complete the work outlined in this grant application, meet all its obligations stipulated in the contract, and deliver the promised benefits to our customers prudently and cost-effectively.