BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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ANNA M. SCARLETT

REPRESENTING AVISTA CORPORATION

Avista Utilities Community Grid Platform

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

Topic Area 2: Smart Grid Grants (40107)

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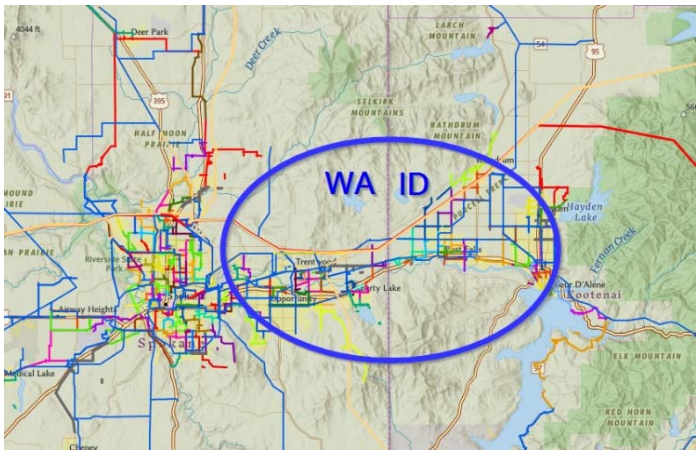
Anticipated Team Member Organizations

- IBEW Local 77
- Pacific Northwest National Labs
- Higher education institutions such as Washington State University, University of Idaho, Eastern Washington University, Community Colleges of Spokane, and Gonzaga.
- INTENT
- Digital Substation consultant and supplier, for example Schweitzer Engineering Laboratories or General Electric
- Workforce Development

Project Location

- Northeast Washington and north Idaho including the Spokane, WA – Coeur d'Alene, ID Combined Statistical Area.
- Final location will be based on maximizing the community benefits and grid transformation aspects.



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

Project Summary and Technology Description

Executive Summary and Project Description

Avista Utilities is a vertically integrated utility providing energy to customers across 30,000 square miles and four northwestern states. We provide electricity to approximately 400,000 customers throughout Eastern Washington and North Idaho. Since Avista's founding in 1889 as a producer of clean, renewable hydro power, we have conducted our business in ways that honor the integrity of the natural resources in the areas we serve. As a leader in clean energy and innovation, we are proud to continue these commitments to environmental stewardship and sustainability as we continue to meet the changing energy needs of our customers and communities.

This Concept Paper outlines Avista's request for Smart Grid Grants funding to support the Avista Community Grid Platform Project. This initiative will improve system efficiency, reliability, visibility, communication security, aggregation and integration of distributed energy resources, interoperability, and anticipate and mitigate the impacts of extreme weather or natural disasters.

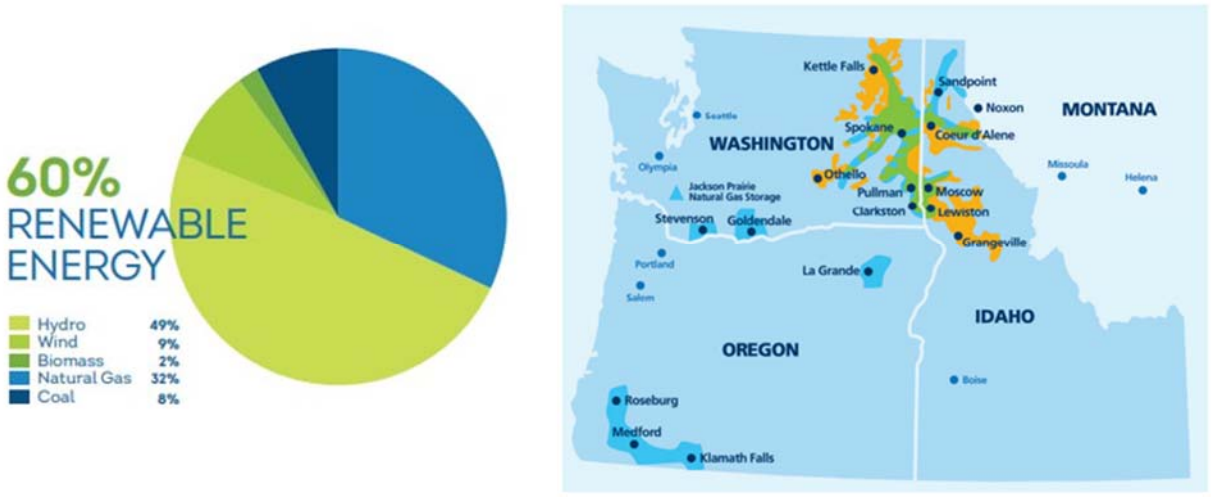


Figure 1 - Avista Energy Mix and Service Territory Map

Goals and Vision

The next generation of electric delivery infrastructure will have vastly different requirements than the systems of today. The grid will need to be more flexible, clean, and resilient while remaining safe, dependable, and affordable. It will also benefit from broader participation, bringing along all customers to equitably participate in the transition to a cleaner and more modern power system. The utility industry has long followed a continuous improvement model with each generation delivering incremental improvements in delivery and service. This model stands in contrast to transformational changes currently underway including decarbonization of the energy system and electrification of buildings and transportation. The industry must adopt a different approach to meet these challenges. The Avista Community Grid Platform represents a

unique approach that will serve as an example of grid modernization and is centered around the evolving needs of the communities it serves.

Modifying the system to provide a better energy future for every customer requires innovative ideas and the ability to execute those ideas in an operational context. Avista has a corporate goal to serve customers with 100% clean electricity by 2045 and building a grid for the future is an essential component of achieving that goal. The impacts of climate change are escalating in the region. Making the grid more adaptable, efficient, and safe will expedite the process toward a more resilient infrastructure system and a zero-emissions electrical grid. Avista will draw on its industry-leading experience with smart grid deployments to execute a transformational change to the utility and industry. The Avista Community Grid Platform will encompass all aspects of a modern, digitally enabled grid, deploying at scale while creating a new generation of replicable standards.

Within the proposed project are enabling technologies which, when deployed with intention, will achieve the core values of system resiliency, flexibility, safety, and efficiency. Yet, deploying with intention means more than incorporating good design and technologies; it also requires organizational change, workforce development, and community engagement. Avista is positioned to successfully implement all these smart grid aspects based on prior experience with innovative projects and a clear vision for the future.

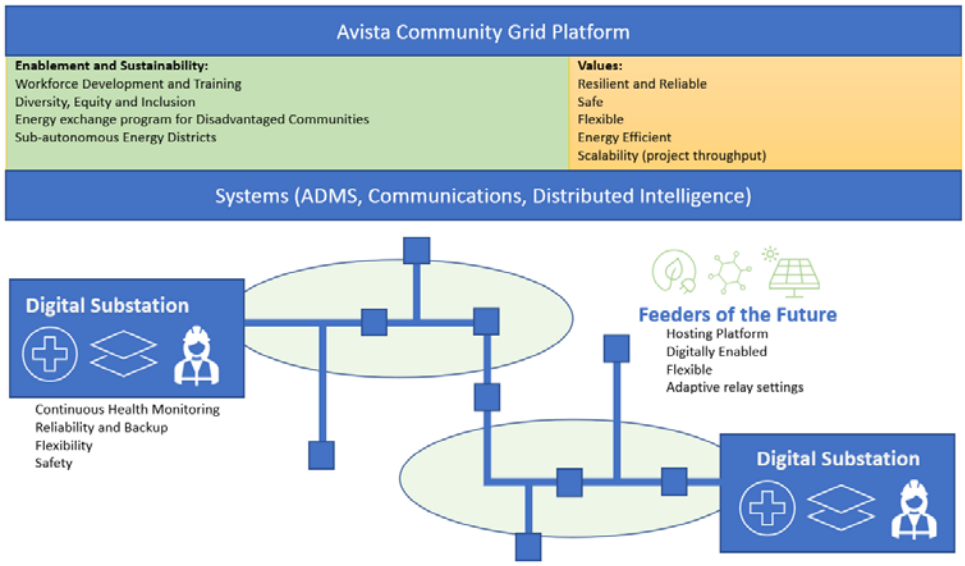


Figure 2 - Program Overview

Each component of the project plays a role and is connected with the others by common threads, technology, process, and people. The community grid platform will deploy digital technologies that transform all aspects of the grid. The workforce responsible to design, deploy and operate this grid platform must develop new competencies and work practices. The proposed program will focus on building high-quality and easily deployable systems. Understanding that the people and process are on equal footing with the technology will lead us toward enabling the workforce for the future to support the Community Grid Platform.

Project Elements

The Avista Community Grid Platform Project will consist of the following key components:

1. **Digital Substation Standard and Deployment**
   A Digital Substation utilizes digital secondary systems (process bus) where CT/PT and control signals are digitized in the yard near the measurement point and a fiber optic network communicates those signals back to the relays in a time-synchronized manner at high speed. It also incorporates digitization of historically hard-wired control signals (station bus), advanced Human-Machine Interface (HMI), continuous asset health monitoring, automatic event data collection, and robust cyber security systems for active detection of issues. Digital substations use interoperable standards to achieve many grid benefits, including flexibility, reliability, safety, and cost savings. The most important benefit of a digital station for Avista is project throughput. Digital substations provide opportunities to reduce the engineering and installation time for substation control and automation systems, allowing more substations to be built in less time. This is needed at a time when electrification and renewable integration is pushing the electric system to new limits, requiring the construction of many substations over the next decade.

   The proposed project is the development of a digital substation standard for Avista's most deployed substations, which are distribution stations. The standard will be deployed at an upcoming substation project site. The final deployment site selection will be a site already identified in the capital plan, but the exact location will depend on the community impact potential as identified through the community benefits plan.

2. **Distributed Energy Resource Hosting Platform**
   Distributed energy resources (DER) have required upgrading Avista feeders to accommodate two-way power flow when the distributed generation exceeds the system load. The benefits of distributed energy are increasingly clear for customers, utilities, and Avista's vision to be a hosting platform for DER's. The project will start by developing new planning standards and distribution standards aimed at enabling DER hosting on all feeders. Using the standard design, a feeder of the future program will be built on a select group of feeders, enabling customers to interconnect more seamlessly with the system and more clean energy to come online faster.

3. **Smart Line Devices on Feeders**
   Due to the concern that lines may be inadvertently energized during a utility outage, safety has been one of the historic challenges of deploying distributed generation. This concern can be alleviated using sensors on the lines that detect fault locations with higher precision as well as voltage and provide a warning to system operators if the line is still energized. When deployed as part of a smart switch or recloser, the same sensors can provide increased system reliability and resiliency. With more switches and reclosers deployed, fewer customers will be affected by system faults. Avista has previously deployed smart line devices on more than

78 feeders and continues to expand the number of smart feeders each year. Smart Grid grant funding would catalyze the next generation of line device deployments, helping improve operational technologies, usability, and flexibility.

4. **Advanced Distribution Management System (ADMS) Expansion**
   Avista is currently deploying an ADMS to replace our existing Distribution Management System with one that is more standards-based and interoperable. The current ADMS project scope covers the existing smart feeders, but Smart Grid grant funding will expand the scope to include the additional feeders proposed to receive upgrades as part of the program. Expanding the reach of the ADMS system will greatly enhance system visibility and situational awareness. Additionally, Avista could achieve better system restoration times and more cyber resiliency by including redundant communications paths to the primary ADMS site and the backup control center.

5. **Resilient Communications**
   Network communications are a key enabler of all digital grid concepts. The project would deploy additional network hardware where needed and modify existing networking equipment to allow for greater flexibility and capacity. Communications upgrades will include last-mile communications to line devices such as private wireless broadband and various WAN solutions as needed. The communications systems combined with the other project deployment elements will enable other applications such as smart Electric Vehicle (EV) charging and intelligent load control.

6. **Distributed Intelligence**
   Avista recognizes that traditional control architectures used on the grid are not adequate with exponentially more controllable devices interacting on the distribution system. The computational complexity of optimizing the system will require some decisions be performed in distributed manners. Over the past decade of regional grid modernization, Avista's partnership with Duke Energy funded the development of an open-source grid operating platform (OpenDSO) to alleviate challenges presented by traditional control solutions. This platform has the potential to transform grid operations by providing intelligent control at the grid edge. Avista will incorporate this ability into the integration between the smart line devices and the ADMS deployment as part of the modernization program. Distributed intelligence built in from the start of the new smart grid standard will provide flexibility for future scenarios on the grid, including new market participants, transactive energy, Distribution System Operator models, transportation electrification, and DER aggregation.

With the six program elements listed, implementation strategy and consideration of the workforce impact of deployment are paramount to success. Avista has invested in a state-of-the-art Energy Innovation Lab, which was commissioned in 2020 to accelerate the successful integration of new grid technologies in an operational context. The Avista Energy Innovation Lab will be used to validate and refine design standards before deployment, verify interoperability, and perform functional testing using a real-time digital simulator with hardware-in-the-loop capability. Additionally, Avista will use the lab to provide a hands-on and interactive learning

environment for personnel (technicians, engineers, electricians, line workers, and others) to train on the new technologies and provide valuable input to deployment teams.

Figure 3 - Real-time simulation environment in the Avista Energy Innovation Lab

Avista and its partners have taken a proactive approach to grid modernization and building smart grids, starting with utilization of Smart Grid grant funding from the American Reinvestment and Recovery Act. Lessons from those projects helped create a new vision for the grid, and the continuation to pilot new concepts over the past decade. The Avista Community Grid Platform will provide a monumental step toward a future that has already been clearly articulated but not yet fully realized. With the help of Smart Grid grant funding, Avista will again have a chance to lead the industry forward for the benefit of customers and communities nationwide.

Program Values

The Avista Community Grid Platform has been strategically designed to incorporate and achieve the following key values:

- **Resiliency and Reliability**: Increasing visibility across the entire system provides for better response times, shorter and smaller scale outages, and reduced likelihood of outages because of continuous asset health monitoring.

- **Safety**: With increased complexity and two-way power flow, safety will be ensured via active monitoring. The detection of system problems and alerting personnel in the field will increase safety.

- **Flexibility**: A digitally enabled grid will be more flexible in real-time operations and will also be more flexible and adaptable to longer-term system needs, such as electrification, Distributed Energy Resources (DER) integration, and markets.

- **Energy Efficiency**: With the ability to actively manage and control grid-connected devices, increased energy efficiency will be realized. DER coordination on the system will provide for more efficiency via volt-var control, and additional energy savings will be unlocked by conservation voltage reduction (CVR).

- **Scalability**: Developing replicable standards is of extreme importance because it increases project throughput. With infrastructure needs constantly increasing, utilities need to look for ways to be more efficient because of limited capital. Well-designed digital technologies enable faster delivery of infrastructure.

- **Workforce Development and Training**: In contrast with tradition infrastructure, smart grid technologies require different processes and skill to deploy, operate, and maintain. Any smart grid program will need to consider the impacts on the workforce, but transformational changes will require transformational approaches to workforce development. Standards-based technology approaches will be employed to create consistency in work practices, and hands-on training will close the gap between design and operations. From digital substations to grid-edge devices, the required skills and tools will need to be consistent and the partnership with those responsible for the implantation and operations will be prioritized.

- **Diversity, Equity and Inclusion and Accessibility (DEIA)**: In all aspects of this project's development, DEIA provides the lens by which decisions are made. Without a thoughtful approach, this project will not realize its full potential. Placing DEIA as a core program value ensures that the future workforce is stronger, investments are made to lift groups historically left behind, and the industry becomes a beacon for energy justice. DEIA will be built into program decisions regarding investments, procurement, program design, and workforce development.

Eligible Uses and Technical Approaches

The Avista Community Grid Platform is directly aligned with the eligible uses and technical approaches outlined under Topic Area 2 (Smart Grids Grants). This project will take a comprehensive approach toward a digital grid platform based on a customer and community-centric approach. Specifically, the project will meet the following priority investment areas under the Smart Grid Grants program.

System Visibility to Grid Operators

- **Digital Substations**: Digital substations provide a much richer data set to system operators, distribution operators, operating engineers, and protection engineers. They allow for quick actions to be taken in the case of issues. Proactive monitoring of asset health within the substation means that systems will be maintained and ready to meet the demands they are designed for at any time. Automatic fault event retrieval combined with accurate fault locating will speed up system analysis and restoration.

- **ADMS**: Integrating new feeder circuits into the ADMS will provide distribution operators with added visibility and the flexibility to switch the load between feeders. This will alleviate system constraints during major events such as extreme heat and extreme cold when the system load is at its peak. Optimizing the balance of load between feeders will also provide long-term benefits by reducing infrastructure costs.

- **Resilient Communications**: Adding redundant communications from feeder devices to the ADMS ensures that system visibility is not compromised by single-contingency failures within the communications infrastructure. The same situations that strain the grid infrastructure (wildfires, high wind, extreme temperatures, and storms) also cause failures of network infrastructure, which is why redundancy is critical to achieving and maintaining the benefits of ADMS integration.

- **Distributed Intelligence**: Creating new insights closer to the grid edge via distributed intelligence will add additional visibility not possible with a traditional centralized system. Insights can be generated using local information not sent to the central system, allowing for automation and optimization in a layered approach from the grid edge to control centers.

Secure Communications and Data Flow

- **Digital substations**: The digital substation standard will include new secure networks at the local level, with a publish-subscribe architecture that allows for devices to interact with each other in ways not possible with traditional hard-wired measurement and control circuits. This is enabled by fiber optics and advanced protocols such as Parallel Redundancy Protocol (PRP) and GPS-synchronized communications.

- **Smart Line Devices**: All smart line devices will be equipped with resilient and secure communications systems, allowing for local coordination and central visibility and control.

Integration of Distributed Energy Resources

- **Feeder of the Future**: The first step toward integrating DER's at scale is the creation of a new planning standard that defines the rules for interconnecting resources. The existing rules are based on infrastructure that was not designed for reverse power flow or managing voltage

and vars on feeders with multiple sources. After the standard is developed, the feeder implementation process can take place, where devices are re-programmed or upgraded for coordination with distributed resources.

- **ADMS**: With feeders hosting DERS, the distribution system can be monitored and optimized using the ADMS and associated smart applications, keeping the system safe and reliable.

- **Edge Intelligence**: The aggregation of smaller-scale resources such as smart homes/buildings, electric vehicles, and grid edge solar/storage will be expanded by edge intelligence capabilities. The proposed edge intelligence will be based on Avista's previous experience driving the development of the open-source edge intelligence platform called OpenDSO.

Interoperability

- **Digital Substations**: The digital substation standard will be based on proven technologies that interoperate based on industry-accepted open standards. The data models employed within the substation standards (IEC-61850) are compatible with the Common Information Model (CIM), allowing for interoperability across the transmission and distribution technologies.

- **ADMS**: Avista is moving toward a CIM-based architecture with the current ADMS project. Using CIM allows for greater interoperability between systems, making data transfer easier and allowing for models to be automatically generated and used by multiple operational and analysis systems

- **Edge Intelligence Systems**: Edge intelligence systems will be architected based on CIM and incorporate any applicable industry standard grid-edge protocols to work with the wide variety of endpoint device types needed.

Anticipate and Mitigate the Impacts of Extreme Weather or Natural Disaster

The systems included under the Community Grid Platform will anticipate and mitigate the impacts of extreme weather and natural disasters by increasing the ability to redirect or shut off power to minimize blackouts, prevent wildfires, and avoid further damage. The most common severe events in Avista's region are extreme wildfires, heat, extreme cold, and high wind. This project will mitigate the risk for each type of event.

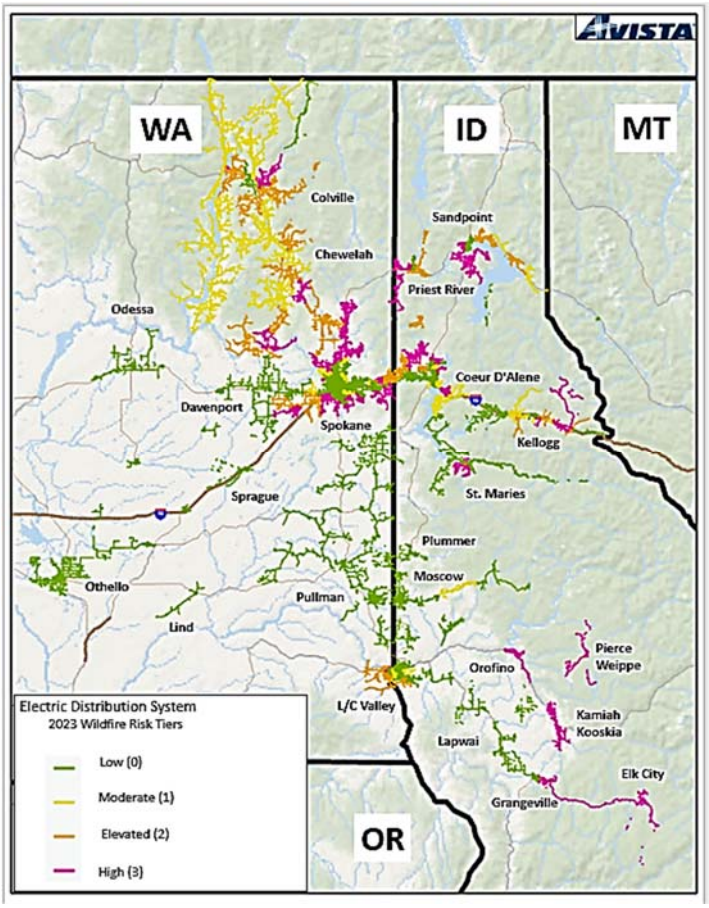


Figure 4. Avista 2023 Wildland Urban Interface

- **Wildfire**: Each distribution circuit that is upgraded to include smart line devices can be brought up to the latest Avista standard for wildfire protection logic. The logic, already deployed on many feeders, utilizes multiple adaptive setting groups to allow for higher sensitivity on circuits with higher fire danger. In addition, wildfire event response benefits from redundant ADMS communications because the communications will be more likely to remain in operation during the event. This will aid in situational awareness and the ability to isolate sections needing to be de-energized for personnel and public safety.

- **Extreme Heat/Cold**: These events can create local issues in the distribution system due to constraints on the capacity of the apparatus and high peak loads. The proposed project allows for the load to be shifted between feeder circuits, thus relieving constrained sections. Feeders that allow for DER integration will host a variety of resources in the future that will be able to provide help should local issues arise. The combination of visibility, flexibility, and additional resources will make the system more resilient to heat/cold events.

- **High Wind**: Wind events cause many unique incidents on the system at the same time, creating a unique challenge when it comes to restoration. Situational awareness is critical to damage assessment and coordinating the many crews required to respond. Having additional smart devices on feeders and communicating with the control centers allows for a quicker assessment of high-priority locations. The proposed addition to Avista's number of smart feeders, along with redundant communications, will significantly bolster response to wind events.

Regional Resilience and Energy Strategies

All aspects of the proposed program contribute toward Avista's vision of a more resilient and clean energy system, while maintaining the reliability, safety and cost effectiveness that are hallmarks of Avista's 130-year history of electric service to the region. Avista has a corporate goal to serve customers with 100% clean electricity by 2045. Resources at the grid edge need to be integrated and coordinated to achieve that goal. Avista's Community Grid Platform project will catalyze the new standard of infrastructure deployment and workforce training, placing Avista on the path to achieve the clean energy goals in the most responsible way for our customers and communities.

A strong foundation improves resilience, and the proposed project includes the development of new standards that will serve as the basis for Avista's future deployments of substations and distribution infrastructure. The planning criteria and standards will accelerate investments in core infrastructure, bolstering reliability and grid flexibility. The addition of technology-based solutions on top of the core infrastructure will provide further ability to reduce response times and improve restoration strategies. The standards and workforce development will be used system-wide, creating a significant change toward a better energy future for the region we serve.

Washington State has long been a supporter of clean energy innovation, and Avista has participated in several rounds of Clean Energy Fund grants through their Department of Commerce. This project is in alignment with the State's work on grid modernization initiatives and builds on the successful projects already deployed. By serving as an example, the proposed project will have positive impacts on the state and the nation via the lessons learned and replicable, sustainable approaches to modernization.

Grid Benefiting Outcomes

The following outcomes will be derived from the proposed program:

1. **Capital Efficiency**: Using replicable standards and digital substations, Avista will be able to deploy more infrastructure faster in the future.
2. **Reliability**: The system will become more reliable by way of decreased likelihood of outages, reduced number of customers experiencing outages, and continuous asset health monitoring.
3. **Safety**: Digital substations improve customer safety via continuous monitoring of the health of relay protection systems, and personnel safety via the reduction of exposure to electrical hazards during field work in substation panel enclosures.
4. **Flexibility**: The grid becomes more flexible when additional smart devices are deployed, allowing for remote re-configuration. In the long term, digital substations allow for greater flexibility because the station configuration can change without causing any re-wiring of the existing system.
5. **Energy Efficiency**: Utilization of distributed energy resources combined with an integrated volt-var control system within the ADMS allows for reduced losses and reduced energy usage due to conservation voltage reduction. Avista has deployed CVR to other smart feeders and will continue that practice.

Impact and Scalability

Avista's Community Grid Platform will employ standards based and interoperable technologies at all layers of the grid. This reduces the risk of innovative technologies because of the wide adoption on a global scale. The standards proposed, such as CIM and IEC-61850, are mature in nature but deployment is limited due to the cost of change. The proposed project will provide the needed catalyst for Avista to advance toward adoption of these standards.

The proposed edge intelligence deployment will utilize OpenDSO, which integrates with the ADMS using CIM. It serves the purpose of enabling scale related to many devices at the grid edge. It is intended to relieve the reliance on proprietary, siloed solutions by integrating and aggregating resources to a common utility data and control model. This means that as future devices on the grid edge are developed, they can be integrated via adapters to the standard.

Financial Impact of the Grant

Avista has a long list of capital projects competing for a limited budget each year. The development of new standards and work practices has a cost, and while the long-term benefits are clear, it is often hard to prioritize such changes when faced with limited resources. DOE funding would fill that gap, allowing Avista to prioritize these activities. Table 1 compares the prioritizations currently in Avista's 5-year plan, compared to what is possible if funding is awarded via the Smart Grid grants.

Project	**Current Proposal**	**Proposal with grant funding**
Planning Standards	No budget for modification of hosting capacity analysis method	Develop new hosting criteria based on the desire to integrate high penetration of DERs on feeders.
Digital Substation	Traditional substation standard	Digital substation deployment: • Additional redundancy in protection • Continuous health monitoring • Replicable standard design and deployment
distribution feeders	Basic reconfiguration for new station	Additional smart switches, line reclosers and tie points to adjacent feeders. Communications added to line devices.
ADMS	Implement new ADMS to existing DMS-enabled feeders only	Expand ADMS to a new set of feeders and add redundant ADMS communications to the back up control center
Edge Intelligence	Deploy OpenDSO as part of the Connected Communities project	Expand OpenDSO to be a standard and integrate it with the ADMS, deploying on the new smart feeders.

Table 1 – impact of grant funding on existing project plans

The total project cost for this work is $99.2 million. Avista plans on requesting $32.2 million in federal funding or approximately 32.5% of the total project. Federal funding would leverage

significant funding from Avista above the minimum cost-share requirements of Smart Grid Grants program. Avista anticipates providing matching funding in the amount of $67 million or approximately 68% of the total project cost. Table 2 provides budgetary estimates for each of the project components needed to deliver on the vision of the Avista Community Grid Platform.

Project	**Proposed Avista Cost Share**	**Proposed Matching Fund Request**	**Total**
Digital Substation	$15M	$15M	$30M
DER hosting standard and feeder upgrades	$0	$1.6M	$1.6M
Smart Line Devices	$0M	$8M	$8M
ADMS	$40M	$1.6M	$41.6M
Communications	$11.5M	$5.0M	$16.5M
Distributed Intelligence	$0	$1M	$1M
Other Avista cost share	$0.55M	$0	$0.55M
Total	**$67M**	**$32.2M**	**$99.2**
percent	67.5%	32.5%	

Table 2 – Cost breakdown

Readiness, Viability, and Expected Timing

Avista will move quickly to implement this project upon receiving funding. Avista has a long history of successful investment in innovative technology and successful outcomes from smart grid deployments. Avista has deployed over 400,000 smart meters (electric and natural gas), providing the robust experience needed for the continuation of deploying transformational technology. Based on our experience with similar projects and our planning of this initiative, we are confident in its viability, and we anticipate completing design and beginning construction by Q4 of 2024 and completing all platform construction and commissioning byQ4 of 2028.

Community Benefits Plan

The Avista Utilities Community Grid Platform 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 Community Grid Platform 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.

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

Smart grid technologies require different processes and skills to deploy, operate, and maintain compared to traditional infrastructure. Any smart grid program will need to consider the impacts on the workforce, but transformational changes will require transformational approaches to workforce development. 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. From digital substations to grid-edge devices, the skills and tools required will need to be consistent, and the partnership with those responsible for the implantation and operations will be prioritized. 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 part of this project, Avista will partner with craft training to use the Avista Energy Innovation Lab as a hands-on learning environment for union workers responsible for the deployment and maintenance of the new technologies. Avista is also a founding member of an organization called INTENT, which is a regional partnership with a broad scope related to the clean energy transition. Through partners in INTENT, Avista will be at the center of regional workforce development related to clean energy jobs.

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 community grid platform 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 cumulation 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.

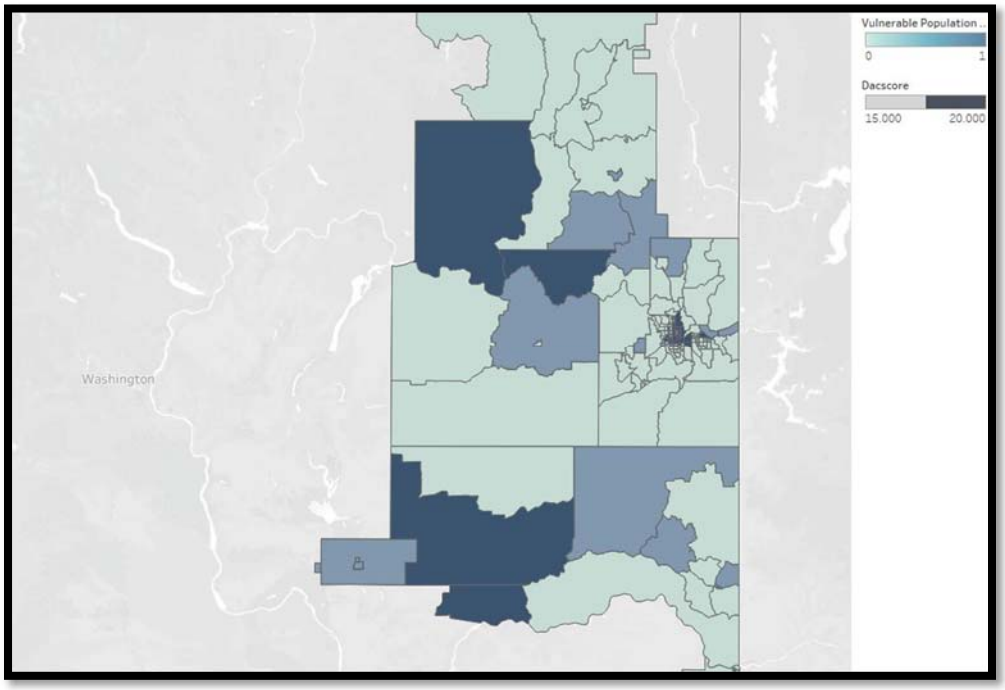
Avista will continue to implement further practices and comprehensive strategies to make considerable progress to support EID, participation, and accessibility efforts.

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.

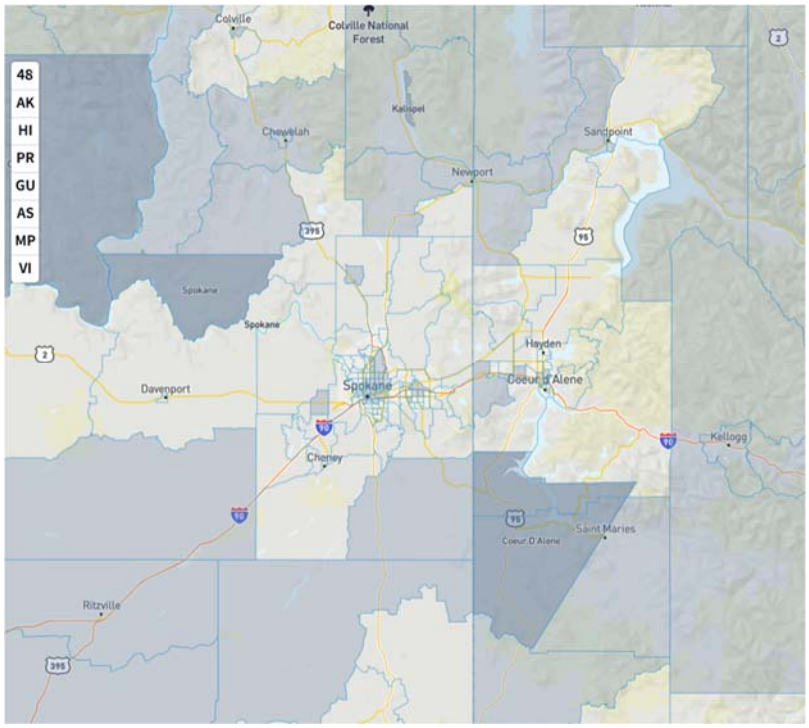
In consultation with its Equity Advisory Group (EAG) and other advisory groups members, Avista determined which communities qualified as Vulnerable Populations within the areas Avista serves. The map below illustrates the intersection between the Energy Justice identified Disadvantaged Communities and 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 Community Grid Platform project will be implemented as part of the CEIP and with strategic decisions to maximize benefits for disadvantaged communities within our service area. 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 Community Grid Platform will be focused on historically underserved areas to deliver even more of the benefits to these populations.

Specifically, the Community Grid Platform will enable technologies at the foundation of the future grid. The intention is to create replicable standards that become the foundation for Avista's future and execute their initial deployment. The exact location of the deployments will be focused on the community impact potential as identified through the full community benefits plan completed for the full application. 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

Lastly, the benefits provided by this project will build upon Avista's clean energy foundation. Since Avista's founding in 1889, the organization has prioritized using renewable energy resources as a source of clean, safe, affordable, and reliable energy. As proposed, the project will positively impact Avista's Clean Energy Implementation Plan metrics by reducing risk of outages, improving energy resiliency, and enabling deployment of non-emitting energy in Named Communities.

Addendum A

Skills and Expertise of Project Manager and Team

The Avista project management team will follow a proven model developed by Avista where focused leadership and collaboration are the core to successful delivery. Avista project team members have strong resumes when it comes to leading the design and deployment of innovative smart grid projects. A program of this scale will include a large team across many departments. The following people are the core management team:

Anna Scarlett, Director of Business Transformation
Anna Scarlett leads business transformation at Avista, and is responsible for aligning organizational goals for cost management and customer affordability with enterprise change management and operational excellence. She is leading our overall IIJA and federal grant tracking and application work.

John Gibson, Energy Innovation Lab Director
John Gibson was the project manager for Avista's original DMS deployment in 2010. Since then, he has been leading the charge on grid innovation and implementation within Avista, serving as founding Director of the Energy Innovation Lab. John has been the visionary leader and business sponsor for many grant-funded innovation projects, such as the Clean Energy Fund grants, UI-ASSIST, A2SDP, and others. John is a founding member of INTENT, a regional partnership.

Vern Malensky, P.E., Director of Electrical Engineering
Before becoming Director of Electrical Engineering, Vern was the lead project manager for the Avista Washington Advanced Metering Infrastructure program, deploying a system with over 600,000 meters and integrations to multiple enterprise software systems.

Greg Sharpes, Relay Shop Foreman
Greg Sharpes is active as an industry leader as a relay technician, serving on the WSU Hands-on Relay School committee for several years. He is familiar with digital substation technology and is an advocate for change that enables our technicians.

Mike Diedesch, P.E., Grid Innovation Lab Manager
Mike has performed Engineering tasks related to power systems automation for over a decade, including System Protection, SCADA, Distribution Automation, metering, and energy storage. Mike was the lead Engineer and Project Manager for Avista's first microgrid deployment and now leads a team of talented and innovative Engineers in the Lab, serving to accelerate the implementation of new grid technologies.

Brian Vandenburg, P.E., Manager Engineering Projects
Brian leads a team of project managers who coordinate Avista's projects within Energy Delivery. He is an Engineer with experience in Distribution and Automation, adding to his ability to coordinate complex work such as the proposed project.

Glenn Madden, P.E., Substation Engineering Manager
Glenn leads the engineers that produce the designs via drawings, specifications, and material lists to build new substations or modify existing substations. Glenn has led the team for over 5 years.

Prior Experience

Avista's long history of innovation is incorporated as part of the company's DNA and is one of our core values. Avista has founded companies such as Itron and Ecova (now Enel), invested in grid technology startups, and demonstrated successful outcomes from smart grid deployments. Avista has deployed over 400,000 smart meters (electric and natural gas) providing the robust experience needed for the continuation of deploying transformational technology. Examples include:

1) Spokane Smart Circuit (ARRA Smart Grid Investment Grant)
    - Deployed smart line devices to 59 of Avista's 330 distribution feeders
    - Deployed a Distribution Management System enabled with automatic fault restoration and integrated volt-var control and conservation voltage reduction.
2) Pacific Northwest Smart Grid Demonstration Project (ARRA Smart Grid Demonstration Project)
    - Deployed AMI in the city of Pullman, WA which laid the foundation for the future AMI Washington deployment
    - Included intelligent load control in the form of customer thermostats and apps, commercial air handlers and chillers, and smart transformers
    - Participated in the regional transactive energy demonstration
3) Smart Grid Workforce Training Grant (SGWT)
    - Created a live replica of the smart distribution feeders for training
    - Built a training town at Avista's craft training location to demonstrate new grid edge technologies and train the workforce to interact with them
4) Clean Energy Fund 1 (WA Dept. of Commerce) – Vanadium flow energy storage
    - Partnered with Schweitzer Engineering Laboratories to deploy a grid scale battery for resilience, energy efficiency, frequency response and demand reduction
5) Clean Energy Fund 2 (Wa Dept. of Commerce) – Shared Energy Economy Microgrid
    - Partnered with PNNL, WSU and SEL to deploy Microgrid which demonstrated the value of a shared energy economy model where distributed energy resources are coordinated with each other for customer and grid value
6) Clean Energy Fund 3 (WA Dept. of Commerce, in progress) – Eco-District
    - Developed a central plant concept, known as an eco-district, to demonstrate the value of grid enabled and efficient buildings, and developed an economic optimization process to automatically dispatch the building, solar and storage to achieve customer and grid outcomes.
7) Connected Communities sub-recipient with Edo, LLC (Dept. of Energy, in progress)
    - Building on the customer and grid values enabled by the eco-district, connected communities seeks to extend the customer participation model to the neighboring businesses and residential customers.

8) A2SDP sub-recipient with Georgia Tech (Dept of Energy, in progress)
    - Avista worked with Georgia Tech to validate their adaptive and secure digital feeder protection concept, deploying it in the field. The concept has parallels to digital substation technology and solves many of the issues related to high penetration DER deployment.
9) UI-ASSIST sub-recipient with WSU (Dept. of Energy, in Progress)
    - Worked with a large international team of partners between the United States and India with the mission advance cutting-edge distribution technologies that promote greater energy independence and economic growth
    - Avista's microgrid was one of the key demonstration sites for the United States participation in the program, which had a total commitment of $30 million
10) Founding Partner of Urbanova, a non-profit focused on Urban Innovation
11) Avista's Energy Innovation Lab is using a real-time grid simulator to help us fast-track the pace of innovation and accelerate our ability to test new ideas and deploy them with confidence at utility-scale.

Experience with Partners

Avista has a rich partnership ecosystem demonstrated by the previous projects listed. For this project, Avista will continue to establish strong project partners to ensure project success and alignment. Avista will include partner commitments, roles and letters of support in the full application.