

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-07 \_\_\_\_\_

DOCKET NO. UG-07 \_\_\_\_\_

DIRECT TESTIMONY OF

HEATHER L. CUMMINS

REPRESENTING AVISTA CORPORATION

**I. INTRODUCTION**

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

A. My name is Heather Cummins, my employer is Avista Utilities, and my business address is 1411 East Mission Avenue, Spokane, Washington. My present position is Manager of Distribution Engineering, which includes management of the Electric Meter Shop.

**Q. Would you describe your educational background and professional experience?**

A. Yes, I am a 1999 graduate of Gonzaga University with a degree in Electrical Engineering. I joined the Company in 1996 and have spent 10 years in various engineering and management positions. These positions include Engineering Design at Avista Labs, Secondary Network Design and Planning, Distribution Planning, and System Efficiencies Engineering. I am a Licensed Professional Electrical Engineer in the State of Washington.

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

A. My testimony will describe Avista's proposal for implementation of Advanced Meter Reading (AMR) for Avista's customers in the State of Washington.

**Q. Are you sponsoring an exhibit in this proceeding?**

A. Yes. I am sponsoring Exhibit No. \_\_\_\_ (HLC-2), pages 1 and 2. Page 1 of 2 depicts historical meter reading expenses in Washington, Idaho and Oregon. Page 2 of 2 show the preliminary cost estimates for Phase I and II. These exhibits were prepared under my direction.

**Q. Please summarize the Company's plans regarding Advanced Meter Reading, or AMR.**

1           A.     The Company proposes to install AMR devices on all Washington natural gas  
2 meters and upgrade electric meters to new solid-state meters with AMR capability, commencing  
3 in 2008. Although the Company is not proposing a change in rates in this filing related to the  
4 implementation of AMR, it will be requesting recovery of AMR – related costs in future rate  
5 proceedings. Avista is presenting its AMR proposal for informational purposes only.

6           **Q.     Does Avista have experience with the implementation of an AMR system in**  
7 **its other jurisdictions?**

8           A.     Yes. In 2004 the Company completed an AMR project to automate the balance of  
9 Avista’s gas meters in the State of Oregon. Over 43,000 AMR devices were installed on  
10 schedule and within the Company’s established budget.

11           In 2005, the Company began a four-year project to convert 175,000 gas and electric  
12 meters to AMR in the State of Idaho. As of this filing, over 133,000 gas and electric meters have  
13 been automated. Over 112,000 gas and electric meters were automated using radio-based  
14 technology and 21,000 were automated utilizing power line carrier (PLC) technology. Currently,  
15 8,000 electric and gas meters utilizing radio-based technology are read automatically by a radio-  
16 based network and 104,000 are read through a mobile collection system. Meters on the PLC  
17 system are read automatically, and do not require a meter reader or mobile unit to collect the  
18 meter reading.

19           **Q.     Please explain how the mobile collection system works.**

20           A.     The mobile collection system works by having a meter reader drive an automobile  
21 equipped with a wireless automated meter reading device that gathers consumption data from

1 radio-based meters. Although the mobile collection system doesn't provide interval data, it does  
2 offer the benefits of increased operational efficiencies and enhanced employee safety.

3 **Q. Please summarize the Company's perspective on AMR.**

4 A. Avista has been following the development of AMR over the past decade. In  
5 Washington, the Company plans to take two approaches to the deployment of AMR. The first is  
6 to implement AMR in areas where meter reading routes and customer locations involve  
7 extensive driving, lack of access, or hazards for Avista's personnel. The second is to monitor  
8 development of AMR technology with an eye on the future. The Company intends to install  
9 systems that are long-lived and suitable for expansion.

10 As the Company has progressed with its four-year deployment of AMR in its Idaho  
11 service territory, there have been advances in the AMR industry, as well as increased interest in  
12 AMR from utilities across the nation. The first stages of the deployment in Idaho focused on  
13 installation of radio-based devices that were then converted to mobile reading in order to achieve  
14 operational efficiencies. In the two years since deployment began, there have been additional  
15 developments in the technology surrounding a radio-based network, and the Company anticipates  
16 that further advances will occur over the next several years. Avista has selected and deployed  
17 PLC technology in Idaho's rural service areas.

18 As explained below, the Company's strategy for deployment in Washington will be a  
19 two-phased approach. The first phase will start in the more rural areas with the deployment of  
20 PLC technology. This will allow more time for the radio-based technology to mature for phase -  
21 two deployment in the urban areas.

1           **Q.     What technology or type of AMR devices is the Company proposing to install**  
2 **on electric meters?**

3           A.     The Company intends to ultimately utilize a combination of AMR technologies in  
4 its Washington service territory. The electric meter technology most economical in areas with  
5 lower meter densities is PLC based technology. PLC is a technology that allows signals to be  
6 transmitted over existing distribution power lines. The data transfer rate of the PLC system is  
7 generally not as high as other technologies, and in high meter density areas, the PLC system  
8 typically has a higher per meter point cost than other technologies. The Company plans to start  
9 in the lower meter density areas with PLC technology installations on electric meters (Phase 1),  
10 and continue monitoring the marketplace to identify the most economic, future compatible  
11 technology for the higher meter density areas (Phase 2). Because of the data requirements for  
12 some industrial accounts, the Company will continue to use phone-based technologies for these  
13 customers.

14           A number of factors will determine where the PLC technology is utilized, including area  
15 geography, distribution configuration, installation costs and the presence of natural gas. The  
16 efficient utilization of PLC technology is usually accomplished with the conversion of customers  
17 served by the same substation.

18           All electric technologies considered will have the capability to capture, at a minimum,  
19 hourly interval data.

20           **Q.     What technology or type of AMR devices is the Company proposing to install**  
21 **on gas meters?**

1           A.     A radio-based technology will be installed on all gas meters and initially read  
2 monthly by a mobile device. Since gas meter installations are inherently different than electric  
3 meter installations, some options available for electric meters are not economically viable or  
4 applicable for gas meters. This is particularly true in rural areas where it would require the  
5 deployment of two separate technologies. By installing radio-based endpoints and reading the  
6 meters by a mobile device, the identified savings in meter reading expenses can be realized.

7           **Q.     How do you plan to evaluate other technologies to determine the most**  
8 **appropriate technology for the urban areas?**

9           A.     Avista will test the latest available technologies to further evaluate radio-based  
10 network technology and will continue to monitor developments in the marketplace and  
11 deployments by other utilities. The Company identified current capabilities and limitations of  
12 each technology with a preliminary evaluation of emerging two-way Advanced Metering  
13 Infrastructure (AMI) technologies.<sup>1</sup>

14           **Q.     Please further explain the opportunity for electric time-of-use critical peak**  
15 **pricing.**

16           A.     The system Avista is proposing will allow collection of electric energy  
17 consumption data in time intervals of one hour or less. Although this project does not include

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<sup>1</sup> ***Definition of Advanced Metering Infrastructure (As defined by Utility AMI group)***

An advanced metering infrastructure is a comprehensive, integrated collection of devices, networks, computer systems, protocols and organizational processes dedicated to distributing highly accurate information about customer electricity and / or gas usage throughout the power utility and back to the customers themselves. Such an infrastructure is considered "advanced" because it not only gathers customer data automatically but does so securely, reliably, and in a timely fashion while adhering to published, open standards and permitting simple, automated upgrading and expansion. A well-deployed advanced metering infrastructure enables a variety of utility applications to be performed more accurately and efficiently including time-differentiated tariffs, demand response, outage detection, theft detection, network optimization, and market operations.

1 the necessary modifications to Avista's billing system to implement a time of use or critical peak  
2 rate structure, the equipment that the Company is installing will provide all the field data  
3 necessary to support this type of system in the future.

4 **Q. What are the benefits to the Company and its customers from the**  
5 **implementation of AMR?**

6 A. From 1995 to 2003 Meter reading expenses in Washington have increased an  
7 average of 5.5% every year. Exhibit No. \_\_\_\_ (HLC-2), page 1 of 2, depicts historical meter  
8 reading expenses in Washington, Idaho and Oregon. Continual increases in meter reading  
9 expenses, as well as the Company's experiences in Idaho, indicate that now is the time to expand  
10 implementation of this technology in Washington. In addition to direct meter reading savings  
11 compared to manual meter reading, this technology will provide the foundation for later adoption  
12 of retail electric energy pricing that may vary by hour of the day or day of the week. This type of  
13 pricing can ultimately be used to provide customers economic incentives to curtail usage during  
14 critical energy periods. The electric meter equipment Avista proposes to install will provide  
15 interval metering data, as well as indications of tampering and information on outage conditions.  
16 This equipment is not intended to provide aggregated demands for tariff calculations; however, it  
17 will enhance Avista's ability to provide consolidated billing statements for customers with  
18 multiple accounts.

19 AMR helps eliminate the need for estimated reads, reduces the volume of phone calls  
20 associated with estimated reads and the need for investigations related to such calls. Customer  
21 billing will be more accurate because estimates and misreads will be reduced. Additionally,  
22 information obtained through a networked AMR system will be of value in determining more

1 efficient specifications for distribution equipment used to serve Avista's customers. Interval data  
2 provided by the system can be utilized for customer load research and rate development  
3 programs.

4 A networked AMR system can also provide information to help manage operations  
5 during outages and may prevent extended customer outages. Additional software (which will not  
6 be installed now, but can be added later), would allow customers on-line access to hourly load  
7 profile data, which would allow them the opportunity to better manage their electric  
8 consumption. Since all residential electric meters will be updated with new solid state meters,  
9 customers will now be able to easily read kWh consumption values directly from the meter's  
10 liquid crystal display (LCD) readout. These meters also have lower internal energy consumption  
11 which helps to reduce system losses.

12 **Q. What other advantages are associated with AMR technology?**

13 A. Deploying AMR technology could provide opportunity for operational savings by  
14 reducing or eliminating both regular and after-hours service calls due to reconnecting or  
15 disconnecting service at the meter. In the case of an after-hours reconnect, the service can be  
16 remotely activated within minutes as opposed to hours in the more remote areas, thus providing  
17 faster response to customers and eliminating the need to send a service person to the premise on  
18 overtime.

19 Increased employee safety is also an advantage. Dangerous pets, treacherous driving  
20 conditions, obstructed unsafe meter access and potentially confrontational customer contact can  
21 be greatly reduced by utilizing this technology.



1           **Q.    What is the projected cost to install this system in Avista’s Washington**  
2 **service area?**

3           A.    The phase 1 preliminary cost estimate of installing an AMR system in rural  
4 Washington is approximately \$10.4 million. To complete phase 2 AMR installations in the  
5 urban Washington areas, additional costs are estimated to be \$37 to \$61 million, depending on  
6 the technology used in the urban areas. These costs are provided in Exhibit No. \_\_\_\_ (HLC-2),  
7 page 2 of 2. It is important to note that these are preliminary estimates.

8           **Q.    Is the Company requesting specific rate relief or accounting treatment at this**  
9 **time to the cover the implementation of this system?**

10          A.    No. As the Company gets closer to actual implementation it will present a  
11 proposal for recovery of the net costs to install this technology, along with the costs and benefits  
12 associated with AMR.

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

14          A.    Yes it does.