BEFORE THE WASHINGTON UTILITIES & TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION,

COMPLAINANT,

V.

AVISTA CORPORATION, d/b/a AVISTA UTILITIES,

RESPONDENT.

DOCKETS UE-150204 and UG-150205 (*Consolidated*)

DIRECT TESTIMONY OF BARBARA R. ALEXANDER (BRA-1T)

ON BEHALF OF

PUBLIC COUNSEL AND THE ENERGY PROJECT

JULY 27, 2015

DIRECT TESTIMONY OF BARBARA R. ALEXANDER (BRA-1T)
DOCKETS UE-150204 and UG-105205 (*Consolidated*)

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I. INTRODUCTION / SUMMARY

Q: Please state your name and business address.

A: My name is Barbara R. Alexander. I use the title of Consumer Affairs Consultant, and my office is located at 83 Wedgewood Drive, Winthrop, ME 04364.

Q: By whom are you employed and in what capacity?

A: I am an independent consultant.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of the Public Counsel Unit of the Washington Attorney General's Office (Public Counsel) and The Energy Project (Energy Project).

Q: Please describe your professional qualifications.

A: I opened my consulting practice in March 1996, after nearly ten years as the Director of the Consumer Assistance Division of the Maine Public Utilities Commission. While there, I managed the resolution of informal customer complaints for electric, natural gas, telephone, and water utility services, and testified as an expert witness on consumer protection, customer service quality, and low-income issues in rate cases and other investigations before the Maine Public Utilities Commission.

My current consulting practice focuses on regulatory and statutory policies concerning consumer protection, service quality and reliability of service, customer service, smart grid and advanced metering policies and cost-benefit analysis of such programs, and low-income program design and funding issues associated with both regulated utilities and retail competition markets. I have testified in rate cases, rulemaking proceedings, and investigations before over 15 United States and Canadian regulators. My recent clients include the state ratepayer public advocate offices in

Massachusetts, Illinois, Pennsylvania, Washington, Maryland, Maine, Arkansas, and West Virginia, as well as AARP in many states (e.g., Idaho, Montana, New Jersey, Maine, Mississippi, Ohio, Virginia, Illinois, Maryland, Nevada, Oklahoma, and the District of Columbia).

I have testified on proposals for advanced metering deployment in Oklahoma, Maryland, Michigan, California, and Maine. In those proceedings, I evaluated the costs and benefits proposed for these investments in formal testimony.

I am a graduate of the University of Michigan (1968) and I received a J.D. from the University of Maine School of Law (1976).

I have attached my resume with a list of my publications and testimony as Exhibit No. BRA-2.

Q: What exhibits are you sponsoring in this proceeding?

A:

Exhibit No. BRA-2	Credentials for Barbara R. Alexander
Exhibit No. BRA-3	Supplemental Response to ICNU Data Request No. 76, Attachments A, B, and C
Exhibit No. BRA-4	Avista Response to Staff Data Request No. 63, Attachment A
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Q: **What is the subject matter of your testimony in this proceeding?**

A: I have been asked to evaluate the proposal by Avista Utilities (Avista) to deploy Advanced Metering Infrastructure (AMI) throughout its Washington service territory and recover the costs for that investment from ratepayers. My evaluation has consisted of my review of Avista's testimony and accompanying exhibits, and discovery responses submitted to date in this proceeding. The purpose of this evaluation is to determine

whether Avista's proposed AMI investment will deliver benefits to customers in excess of the costs, and whether other alleged, unquantified benefits justify the approval of this investment and recovery of costs from ratepayers. My testimony supports the revenue requirement adjustments associated with this investment recommended by Ms. Donna M. Ramas in her testimony on behalf of Public Counsel.

Q: Please describe the AMI investment and deployment plans as proposed by Avista.

A: Mr. Don F. Kopczynski, on behalf of Avista, supports the Company's proposal for AMI deployment in his Direct Testimony. According to the witness, Avista has entered into the initial planning phase of a program to deploy AMI for all electric and natural gas customers in Washington. The project will take about six years, beginning in 2015, and will deploy smart meters to 253,000 electric and 155,000 natural gas customers.[1]

The project will include replacing all current electric meters with a new digital "smart" meter, and installing a module (called an "Encoder Receiver Transmitter") on existing natural gas customer meters. In addition, the project includes a new two-way communication system that will enable Avista to receive data from and send signals to the new meters, as well as technology and software to integrate the new metering data to a customer web portal and Avista's billing and customer care systems.

Mr. Kopczynski states that the expected benefits will exceed the costs of the project, and he identifies a wide range of potential benefits in his testimony. The "preliminary estimate" of capital expenditures included in his direct testimony is $142.1 million and estimated annual operations and maintenance (O&M) costs of $5.2 million.

[1] According to Mr. Kopczyinski, in 2015 the Company will select the meter system through an RFP process, begin acquisition of supporting computer servers, software applications, and security systems. Actual installation of new meters is scheduled to begin in 2016. Direct Testimony of Mr. Kopczynski, Exhibit No. DFK-1T, at 19.

Mr. Kopczynski emphasizes that the estimates are preliminary because at the time of testimony, Avista had not yet created the specific request for proposal with technical specifications for this project[2] and had only just issued a request for proposal to develop this more detailed solicitation for the entire project. The Company projects that the lifetime costs of $223 million (reflecting the net present value of the needed revenue requirement for this project for both capital and O&M costs) over 21 years will be offset by the net present value of the project benefits of $170.4 million in operational savings (relating to reduced costs for the utility to conduct current operations and maintenance activities) and $60.1 million that Avista projects will be experienced in direct savings by customers. This results in an estimated net benefit over the 21-year life of the AMI project of $7.5 million.[3] This net benefit is equal to 3.36 percent of the lifetime costs and, if expressed as an annual amount over a 21-year period, $357,143 per year.

Q: Has Avista prepared a graphic illustration of its projected costs and benefits for the AMI project?

A: Yes. The following is Illustration No. 6 in Mr. Kopzcynski's testimony (at 15):

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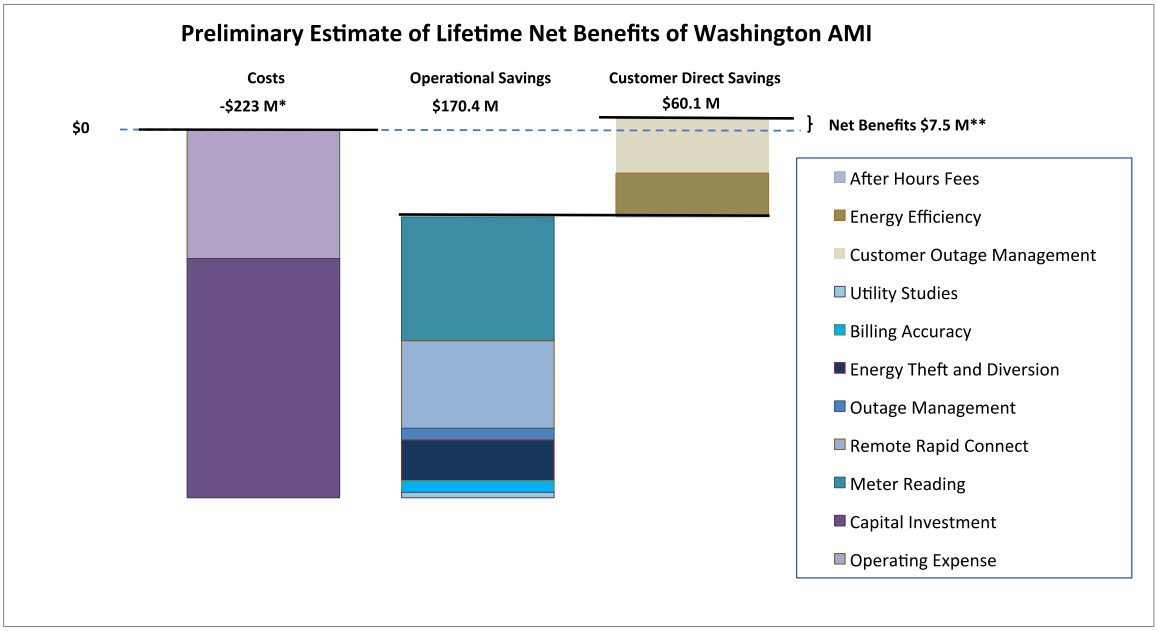
[2] Kopzcynski, Exhibit No. DFK-1T, at 14, ll. 3-5.
[3] Kopzcynski, Exhibit No. DFK-1T, at 15.



Q: Has Avista provided updated estimated cost information since its testimony and business case for AMI were filed?

A: Yes. On July 15, 2015, Avista filed a Supplemental Response to Industrial Customers of Northwest Utilities (ICNU) Data Request No. 76 that revised its preliminary capital costs for AMI from $142.1 million to $165.5 million, an increase of $23.4 million or 16.5 percent. This response is included as Exhibit No. BRA-3 to my testimony. In the response, Avista again emphasizes that it "has no firm pricing at this point…."[4] The Supplemental Response also indicates the following:

- There is an increase in estimated annual O&M costs (from $5.19 million to $5.4 million) and another adjustment to change the "phase in" of full O&M costs over the AMI deployment period.[5]

[4] Exhibit No. BRA-3, Avista Supplemental Response to ICNU Data Request No. 076, p. 1.
[5] *Id.*, p. 3.

- The combined result of the two O&M cost adjustments is to reduce the overall net present value of the revenue requirement associated with AMI by $20.8 million.
- The changes in estimated capital costs, O&M costs, and the methodology for phasing in the increased O&M costs will cause a $4.1 million increase in the overall net present value of the revenue requirement for AMI.[6]

Further, the Supplemental Response states that Avista is "in the process of developing a business case for a network communications system that would support a variety of utility functions" of which AMI is only a part.[7] Therefore, it appears that Avista has not yet included all the necessary AMI related costs in its business case.

Q: Does the information provided in Avista's Supplemental Response to ICNU Data Request No. 76 affect your assessment of the prudence of Avista's AMI project?

A: This information only confirms my overall analysis and increases the likelihood that Avista's proposed AMI investment will result in significant costs imposed on ratepayers without commensurate benefits. Even with Avista's "phasing in" of AMI related O&M costs, which seems designed to artificially improve the results of the business case, the original net positive customer benefits of $7.5 million over 21 years is now lowered to $3.5 million, an insufficient benefit level to justify the risks of this investment. Coupled with my rejection of many of Avista's underlying assumptions about costs and benefits, the new cost estimates confirm my conclusions and support my recommendation that the Commission not approve the proposed AMI investment at this time.

[6] As set forth in Exhibit No. BRA-3, ICNU Data Request No. 076, Supplemental Attachment C under the "AMI Financials" tab.
[7] *Id.*, p. 4.

Q: Is the Supplemental Response to ICNU Data Request No. 76 the only other cost estimate for the AMI project that has been provided in this case, aside from the numbers filed in Mr. Kopczynski's testimony and exhibits?

A: No. There have been multiple estimates for the AMI project provided in Avista's filed case and in discovery. In addition to the numbers provided in Mr. Kopczynski's testimony, there were different estimates provided in the AMI "business case" included in Avista witness Karen K. Schuh's Exhibit No. KKS-5, Attachment ETD-37.[8] Avista later provided a "reprinted" version of this business case in response to ICNU Data Request No. 200, which also included revised costs.[9] Additionally, in response to Public Counsel Data Request No. 65, Avista provided "all presentations and information provided to the Board of Directors…regarding Avista's AMI project."[10] In its presentation to the Board, Avista provided different estimates of the capital and O&M costs than what are included in Avista's request in this case. A table comparing these various cost estimates is included below.

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[8] This document was also provided in response to Staff Data Request No. 63, which asked for the AMI business case. This version of the business case was signed by the preparer, a director/manager, and reviewed by Scott Morris, Dennis Vermillion, President Avista Utilities, and Don Kopczynski. Avista's Response to Staff Data Request No. 63 is included as Exhibit No. BRA-4.

[9] The relevant excerpt of Avista's Response to ICNU Data Request No. 200 is included as Exhibit BRA-5. In its response to this data request, Avista stated that there were printing problems with the assessment score box. However, the response provided is an entirely different version of the business case. Also, this "reprinted" version of the business case does not include any of the management or executive signatures as the previous version did.

[10] Avista's Response to Public Counsel Data Request No. 65 is included as Exhibit No. BRA-6.

TABLE 1: Comparison of AMI Cost Estimates

	Capital Costs	**Annual O&M**	Source:
Kopczynski Direct Testimony	$142.1M	$5.2 M	Exhibit No. DFK-1T
Filed AMI Business Case	$158.5 M	$(5.84)M	Exhibit No. BRA-4 (Staff DR 63) and Exhibit No. KKS-5, Attach ETD-37
"Reprinted" Business Case	$142.1 M	$5.84M	Exhibit No. BRA-5 (ICNU DR No. 200)
9/3/14 Presentation to the Board	$131 M	$5.5M	Exhibit No. BRA-6, (PC DR No. 65)
7/16/2015 Update	$165.5 M	$5.19M	Exhibit No. BRA-3, (ICNU DR No.76, Supplemental)

The varying cost estimates demonstrate the uncertainty behind the cost and benefit assumptions associated with the AMI project.

Q: What costs associated with the proposed AMI investment is Avista seeking to recover in this case?

A: Avista has included $32.2 million for projected electric plant additions associated with AMI implementation in 2015 and 2016. Avista also included $2 million in amortization expense to reflect a proposed regulatory asset to collect the remaining undepreciated amount associated with the existing electric meters (a total undepreciated amount of $20.2 million amortized over 10 years). Additionally, Avista included $8.76 million for projected natural gas plant additions in 2016. Public Counsel witness, Donna M. Ramas addresses these specific revenue requirement proposals in her direct testimony.[11]

Q: Please summarize your conclusions and recommendations concerning Avista's proposed AMI project?

A: Overall, I conclude it is highly likely that the costs of the AMI project will exceed the benefits. With regard to Avista's cost estimates, they are not known with sufficient

[11] *See*, Direct Testimony of Donna M. Ramas, Exhibit No. DMR-1CT, at 65.

certainty at this time, and the Company has not included all costs that are likely to be incurred to deploy AMI. The most recent updated cost estimates only confirm my conclusions in this regard.

Further, I disagree with Avista's identification and estimates of customer benefits included in the Company's analysis of costs and benefits. In particular, Avista's estimated customer direct savings are illusory and should not be relied upon. I will discuss my disagreement with Avista's estimated costs and estimated benefits in more detail later in my testimony.

As a result of my analysis, I recommend that the Commission reject Avista's proposed AMI investment at this time and exclude any associated costs in the revenue requirement the Company seeks for this rate case. Specifically, the costs for this project are neither known and measureable, nor used and useful. Moreover, the AMI project as proposed by Avista is not prudent or cost effective. However, should Avista decide to proceed with AMI deployment, the Commission should clearly state that the Company will need to meet its full burden of proof under a standard prudence determination in a future proceeding in order to recover any of the related program costs from customers. In other words, the risk of this investment, if Avista chooses to move forward with it, should rest with the shareholders. Ratepayers should bear the risk only after Avista demonstrates that its estimated benefits have occurred or will occur and how those benefits will offset the AMI program costs in rates and revenue requirement. The Commission should provide clear guidance that review of the information in the current docket should not be interpreted by Avista as providing any sort of pre-approval for future costs.

Q: Do you reach these conclusions based on any inherent disagreement with the AMI technology or opposition to "smart grid" investments generally?

A: No. I have evaluated Avista's costs and benefits as the Company has proposed and identified in its filing. My evaluation reflects the evidence that I will present to support my conclusions. My testimony is not intended to reflect opposition to AMI in particular or smart grid investments generally. Rather, I have viewed this significant expenditure that Avista seeks to recover from its customers in current and future rates in light of reasonable conclusions about whether the benefits are likely to exceed the costs in the short term or even the long term, and I find the Company's conclusions are unsupportable. I do not recommend that Avista be allowed to pass along these significant costs to customers just because other utilities are deploying AMI or because of a NARUC resolution.[12] It is my recommendation that the Commission evaluate this significant investment and potential costs to ratepayers in the same manner as any other utility investment.

Q: Are you ignoring the AMI deployment trend discussed in Mr. Kopczynski's testimony?

A: No. I believe this deployment trend provides some lessons and context for the analysis of Avista's proposal. However, this Commission should not approve this expensive investment simply because other utilities are deploying AMI.[13] Also, it is important to note, the real surge in deployment of AMI occurred as a result of significant grants totaling $4 billion under the American Reinvestment and Recovery Act (ARRA) in 2009.

[12] As reflected in Mr. Kopczynski's Direct Testimony, Exhibit No. DFK-1T, at 8-10.
[13] It is also important to note that several states have not authorized the full scale deployment of AMI at this time, including New York, Massachusetts, and New Jersey.

Those grants gave up to 50 percent of the cost for AMI deployment to many of electric utilities.[14] Furthermore, other states have mandated AMI deployment by statutory directive, apparently without regard to costs and bill impacts.[15] Neither of these scenarios are present in Avista's case, as ARRA funds are no longer available and there is no mandate for smart meters in Washington.[16] This investment is discretionary for Avista, and, if approved prematurely, as Avista requests here, will require ratepayers to fund 100 percent of the costs. I urge the Commission to carefully examine the costs and benefits of this proposed investment solely on its merits.

Q: Before discussing Avista's proposed costs and benefits in more detail, has Avista provided the potential bill impacts for its customers to pay for this investment?

A: No. According to Avista, the Company has not calculated the bill impacts in dollar or percentage terms for each customer class to pay for this investment either during the deployment phase or during the lifetime of the investment as set forth in its business case.[17] While not included in its original filing, Avista has estimated in discovery the impact of its proposed investment on the annual revenue requirement:

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[14] Examples of states where utilities received ARRA funds for widespread smart meter deployment include: Maine, Maryland, Delaware, Florida, and the District of Columbia.
[15] Examples of states with mandates for smart meters include: Pennsylvania and Texas.
[16] In fact, the Commission specifically rejected a mandate for smart meters in its Interpretive and Policy Statement Regarding Energy Policy Act of 2005, Standards for Net-Metering, Fuel Sources, Fossil Fuel Generation Efficiency, and Time-Based Metering, Docket UE-060649, ¶¶ 30-35.
[17] Avista Response to Public Counsel/Energy Project Data Request Nos. 005 and 006.

TABLE 2: AMI Revenue Requirement Impact[18]

Project Year	Net Revenue Requirement	Percent of Total Revenue
1	$2,762,856	0.4%
2	$5,362,575	0.8%
3	$8,620,458	1.3%
4	$9,771,935	1.5%
5	$13,157,185	2.0%
6	$16,398,670	2.4%
7	$15,364,613	2.3%
8	$13,742,725	2.1%
9	$12,276,265	1.8%
10	$10,966,895	1.6%
11	$8,294,790	1.2%
12	$7,358,417	1.1%
13	$6,502,261	1.0%
14	$5,697,250	0.9%
15	$4,911,214	0.7%
16	$3,718,432	0.6%
17	$5,300,319	0.8%
18	$2,045,231	0.3%
19	-$735,442	-0.1%
20	-$2,738,036	-0.4%
21	-$4,052,520	-0.6%

Even though this presentation does not reflect the updated costs and impacts on revenue requirement included in its most recent Supplemental Response to ICNU Data Request No. 076 that I have described above, it is clear from this presentation that, due to these investments, Avista's ratepayers will pay higher prices for Years 1 through 18, prior to seeing relatively tiny rate decreases in Years 19 through 21.

Because Avista failed to conduct any bill impact analysis, the Commission lacks information to determine the impact of this investment in the short term or long term on

[18] Avista Response to Public Counsel/Energy Project Data Request No. 072.

customer bills. Clearly, customers will pay higher rates and bills to fund this investment, but the absence of any specific information about bill impacts for each customer class is troubling and, in my opinion, a significant defect in Avista's proposal. One is left with the obvious concern that the Company will no doubt seek recovery of additional costs for this investment as it occurs over the deployment phase, but will not show how the purported benefits will be reflected in customer bills as it has promised in its business case.

Q: Please describe how the remainder of your testimony is organized.

A: I will discuss my detailed evaluation of Avista's proposed costs and benefits associated with its AMI proposal as follows:

- Part II: I will explain how the costs and savings, as shown in Mr. Kopczynski's Illustration No. 6, included above, are not reliable. Specifically, I will discuss the categories he addresses: estimated costs, operational savings, and customer direct savings estimates, as well as possible degradation of current consumer protection policies due to some of the cost savings included in the proposal.
- Part III: I explain that the Commission should not rely on unquantified, unsupported, and intangible benefits in an analysis of the AMI proposal.
- Part IV: I explain how Avista's AMI proposal shifts the risks of non-performance to customers and fails to include any performance standards.
- Part V: I conclude with a discussion summarizing my evidence showing that Avista's AMI proposal is not sufficiently developed or supported by sound evidence to allow for approval at this time.

II. AVISTA'S ESTIMATED COSTS AND SAVINGS FOR THE AMI PROJECT

Q: Do you agree with the costs and benefits that Mr. Kopczynski outlines in his testimony?

A: No. Using the divisions of costs and savings as laid out in the chart provided in Illustration No. 6 in Mr. Kopczynski's testimony as a roadmap (as provided above), this section of my testimony will address the estimated costs, operational savings, and customer direct savings estimates he relies upon to arrive at an estimated $7.5 million in net benefits over a 21 year period. Of course, this net benefit calculation is even less under the Company's newly submitted estimated cost updates. As I will discuss in detail below, I do not find Mr. Kopczynski's assumptions to be reliable, and believe the Commission should not accept the estimates provided by the Company. Additionally, there are costs that I believe Avista has failed to evaluate and include in its business case.

A. Avista's Estimated Costs Are Incomplete and Not Reliable.

Q: What are the estimated costs of AMI deployment?

A: As Mr. Kopczynski indicated in his Direct Testimony, Avista estimated AMI deployment costs at $223 million in its direct case. However, as summarized above, Avista has now substantially increased its estimated costs for AMI deployment. I believe the costs could be considerably higher than even this revised estimate, as explained below.

1. Avista's estimated costs are not reliable.

Q: Please explain the basis for the Company's cost estimates for AMI deployment.

A: Avista does not yet have firm bids submitted for the AMI project. Rather, the costs identified by Mr. Kopczynski are Avista's internal estimates for full deployment of AMI,

based on the costs incurred in the implementation of the Pullman pilot project[19] and the Company's monitoring of AMI costs as reflected in industry materials.[20] As a result, the cost estimates do not reflect an investigation of Avista's metering system, the service territory over which the communications network must be installed, or any analysis of the connections required to link the new AMI metering data to the Company's internal billing and accounting and outage management systems. The estimates also do not reflect any vendor's analysis of what is required to meet the Avista's expectations for installation and functionality.

While Avista states that they have included some contingency in its cost estimates,[21] the fact that the AMI proposal lacks detailed cost estimates by potential vendors who have evaluated Avista's specific service territory and needs is troubling. There is a considerable risk that Avista's costs could be in excess of the estimated costs presented in this filing. The Company's latest revision of its cost estimates only supports my concern in this regard. While it is possible that the actual costs would be less than Avista has estimated, this possibility further demonstrates the uncertainty of Avista's estimates. Based on the poorly-supported and limited information provided by Avista regarding its AMI proposal, the Commission does not have certainty that the costs will be as estimated. It is unreasonable to pass this cost risk uncertainty on to ratepayers.

[19] This pilot project installed advanced metering and distribution automation technologies in the Pullman, WA area and was funded in part by a grant from the U.S. Department of Energy. My testimony does not address the prudence or cost recovery for this pilot program.
[20] See, Exhibit No. BRA-7, Avista's Response to Public Counsel Data Request No. 60, Exhibit No. BRA-8C, Avista's Response to Public Counsel Data Request No. 69C (Confidential) and Exhibit No. BRA-9, Avista's Response to Public Counsel Data Request No.70.
[21] Exhibit No. BRA-9, Avista Response to Public Counsel Data Request No. 70 confirms that a "contingency" was included in its cost estimates.

2. Additional Costs Avista failed to include in its assumptions.

Q: Are there costs that you have identified that are not included in Avista's cost estimates?

A: Yes. Even assuming that Avista's cost estimates for the technology and equipment are within a zone of reasonableness, there are other programs and policies that inevitably will result in additional costs and must be addressed as part of AMI deployment that Avista's has ignored. These are discussed below.

a. Customer Privacy.

Q: Please explain your concerns regarding Avista's failure to address costs associated with customer privacy issues.

A: Customer privacy is a significant issue that has typically arisen in AMI deployment. According to Avista, there is a benefit of increased customer privacy associated with AMI because it eliminates the need for Avista's employees to visit the customer's property to connect or disconnect meters or to check for certain outage situations.[22] However, the Company has not submitted any reasonable basis for the assumption that most or even many customers object to the employee visits for meter reading and repair, nor has Avista provided information that customers would value this additional "privacy" to eliminate these visits by paying more for AMI.[23] This claim of a privacy benefit due to elimination of meter reading is novel and fails to recognize the real and considerable privacy concerns that come with AMI technology. More importantly, because Avista has not yet started its public outreach regarding AMI deployment, the Company has not

[22] Kopzcynski, Exhibit No. DFK-1T, at 17, ll. 23-25.
[23] Avista Response to Public Counsel Data Request No. 61 states that the Company has not surveyed customers regarding concern for privacy associated with meter reading or kept records of specific privacy concerns expressed by customers regarding meter reading. The response provides only a very small number of complaints that Avista has received about meter reading.

confronted the public's likely heightened concern about the loss of customer privacy with Avista's access to detailed usage data. The data from AMI will inform the Company of the presence or absence of certain appliances, the customer's lifestyle, and the customer's presence or absence from the home. There is the potential that this sensitive data could be shared with third parties or shared with Avista's affiliates. While Avista correctly states that it will not share customer usage data, whether the traditional monthly or the new hourly usage data, with third parties without the customer's affirmative consent,[24] this alone is unfortunately not a sufficient response to this issue. Once this data exists, there will be an increased interest from third parties who will seek access to this data to market their products and services.

Furthermore, some of these market participants may ask the customer for access to this data directly from the customer once the customer has access to this data from Avista's web portal. Other market participants will want direct access to Avista's metering data in "raw" form from the meter itself as part of an in-home area network. Other market participants will ask Avista for access to an increasingly detailed demographic and usage data for groups of customers that may not reflect individual customer information. All of these privacy-related and data access issues will require significant regulatory proceedings,[25] including rules and tariff provisions that will need monitoring and enforcement, that Avista has not budgeted for in this project.[26]

[24] Exhibit No. BRA-10, Avista's Response to Public Counsel/Energy Project Data Request No. 047.
[25] *See*, e.g., the California PUC's proceeding to develop privacy and data access policies as a result of AMI, "Decision Adopting Rules to Provide Access to Energy Usage and Usage-Related Data While Protecting Privacy of Personal Data," Rulemaking 08-12-009. This proceeding was initiated in 2008 and the final order issued May 5, 2014 (137 pages).
[26] *See*, Exhibit No. BRA-10, Avista Response to Public Counsel/Energy Project Data Request No. 047 confirms that the Company has not included any additional costs for privacy related issues in its cost estimates.

b. Opt-out policy.

Q: Please explain your concerns over Avista's failure to address possible costs associated with an opt-out policy.

A: While Avista acknowledges that some sort of "opt-out" policy will need to be developed, the Company has not proposed any specific policy as part of this filing and has deferred this issue to future conversations with the Commission Staff.[27] In my experience, it will be highly unlikely that Avista can develop, propose, and have the Commission conduct what is likely to be a fairly extensive regulatory proceeding to adopt an opt-out policy without additional expenses. Additionally, Avista has not budgeted any internal costs to respond to customer complaints about the installation process, the development of the opt-out policy and related costs, or the customer education that will be required to implement the final version of the future unknown policy. The fact that Avista is proposing to start installation of AMI throughout its service territory without having developed or proposed such a policy is unreasonable in my opinion. In Maryland, this process took almost two years after extensive litigation.[28] In other states, the policy has resulted in litigation in the state court system.[29] While some states have resolved this issue more quickly, my point is that there will be some administrative and operational costs associated with implementation of an opt-out policy, and Avista has not budgeted for this project.

[27] Exhibit No. DFK-1T, at 19.
[28] Maryland Public Service Commission, Order No. 86727, Case Nos. 9707, 9208, and 9294, November 24, 2014.
[29] *See*, e.g., Friedman et al., v. Public Utilities Commission, Maine Supreme Judicial Court, 2012 ME 90 (July 12, 2012).

c. Cyber security.

Q: Please explain your concerns about how Avista has estimated costs associated with cyber security risks?

A: While Avista claims that it has included the necessary costs to ensure the necessary degree of cyber security for the new digital metering and communication systems, it is more likely than not that the costs will be in excess of the $292,000 estimate.[30] I am not an expert in cyber security systems and I cannot testify as to the details or basis for the cost estimates that Avista has included in this budget, but it is generally understood that the scope and scale of breaches to "secure" digital systems owned by private entities and governmental systems is on the rise and likely to get worse.[31] The replacement of mechanical meters and internal data management systems with a digital meter and a digital two-way communication system that is "exposed" to the internet and cloud-based data resources will increase the danger and likelihood of penetration of Avista's internet-based data systems and associated operational controls of its system. Considering the number of unknowns associated with this aspect of AMI, I believe it is very likely that the costs associated with this feature of Avista's AMI deployment are probably understated.

[30] Kopzcynski, Exhibit No. DFK-1T, at 18; *See also,* Exhibit No. BRA-11, Avista Response to Public Counsel/Energy Project Data Request No. 022 identifies a cost of $292,000 associated with ensuring the security of the metering and communication systems for AMI that is included in the budget.

[31] According to a U.S News and World Report article, utilities have begun to raise concerns about cyber attacks to a very high level, but only 32 percent of electric utilities surveyed for the report had integrated security systems with the "proper segmentation, monitoring and redundancies" needed for cyber threat protection. Another 48 percent said they did not. Also, "Other reports, meanwhile, have said that virtually all the country's gas and electric utilities were relying on vulnerable Windows XP operating systems at workstations, and that the electrical grid at large stands susceptible to cyberattack from abroad and organized criminal networks." http://www.usnews.com/news/articles/2014/08/12/cybersecurity-among-top-energy-industry-concerns [Accessed on July 15, 2015.]

d. Home Area Networks.

Q: Please describe your concerns about Home Area Networks.

A: One of the potential and intangible benefits that Avista has identified as a potential customer value with the installation of AMI includes Home Area Networks.[32] These devices allow a customer with broadband internet access to purchase and install an in-home device that Avista could then send information on the customer's energy usage via the AMI meter. However, these additional costs would be borne by the customer, unless Avista is contemplating purchasing and installing these devices. In either case, these additional costs are not included in Avista's cost estimates for AMI. It would not be reasonable to rely on participant costs to justify a program that is paid for by ratepayers without including these participation costs in the program evaluation, similar to what is required for energy efficiency program evaluations of costs and benefits.

B. Avista's Estimated Operational Savings Reflect Questionable Assumptions and Will Result in Degradation of Current Consumer Protection Policies.

Q: Turning from cost estimates to estimated operational savings and benefits, please summarize the benefits Avista relies upon to justify this investment.

A: According to Mr. Kopczynski, Avista will experience lower costs of $170.4 million for current functions and processes as a result of AMI. While these "operational savings" will not directly flow to customers, Mr. Kopczynski states that these lower costs will find their way into the revenue requirement reductions in future rate cases. While I will address this in more detail in Part IV of my testimony, where I explain that Avista's proposal shifts the risks of non-performance to customers, it is useful to point out that

[32] Kopzcynski, Exhibit No. DFK-5, at 10 and Exhibit No. DFK-1T, at 17. Additionally, I discuss Home Area Networks, and other "intangible" benefits discussed by Mr. Kopcyznski in Part III of my testimony.

Mr. Kopczynski has not identified when or how these savings will impact customer bills or customer rates in the future.[33]

Q: Do you reject all of the estimated avoided costs associated with operational improvement?

A: No. I agree that Avista will avoid some of the costs identified by and included in Mr. Kopczynski's lifetime cost/benefit analysis. For example, I have not evaluated in detail the avoided costs associated with eliminating manual meter reading, the largest category of reduced operational costs, but I assume that significant costs will be avoided in this benefit category. However, I do have concerns that some of the assumptions the Company has made, particularly associated with the change in treatment for premise visits for disconnection for non-payment. Additionally, while I do not challenge all of the operational cost savings assumptions, I believe there are several examples where Avista has made questionable assumptions associated with the level of estimated avoided costs in several categories identified in Avista's business case, which I will discuss in further detail below.

1. Improper "benefit": Remote Disconnection for Non-payment.

Q: Please identify your major concern with Avista's projection of avoided operational costs.

A: My major concern with the estimated operational costs relate to Avista's assumption that it will no longer make a premise visit disconnect for nonpayment. While I do not

[33] Mr. Kopczynski identified several specific categories with associated estimated avoided costs for "improved operational performance," such as eliminating manual meter reading, eliminating premise visits for disconnection and reconnection of service, improved outage management, increased system efficiency as part of the conservation voltage reduction project, reduced energy theft and unbilled usage, greater billing accuracy due to the elimination of estimated bills and human error, and more cost effective utility system studies. *See*, Testimony of Mr. Kopczynski, Exhibit No. DFK-1T, at 13.

disagree with the benefit and cost savings for remote disconnections based on voluntary requests from customers, or the cost savings associated with remote reconnection of service, I have a serious concern with the use of this functionality for remote disconnection for non-payment. Under the current disconnection process, Avista has to make a premise visit to the customer's location to physically turn off the electric meter.[34] Under the Commission's current regulations, a utility employee who is dispatched to conduct the disconnection is required to accept payment from the customer at that time to avoid disconnection of service.[35] These regulations were adopted during a time when it was presumed that utilities had to make a premise visit to disconnect the meter.

Avista's proposal to implement remote disconnection for non-payment without any consideration of the current regulations that assumed that a premise visit would be required is unreasonable. The elimination of a premise visit to disconnect service for non-payment or other utility-directed actions raises important consumer protection issues and concerns. For example, whether or not Avista is required to knock on the door by this regulation, customers do have an opportunity to interact with Avista's metering employees and make offer of payment or describe potential adverse health or welfare impacts if disconnection occurs as intended.

In fact, when the Commission was considering potential changes to the current regulations that require the utilities to accept payment to avoid disconnection at the customer's premises, the utilities submitted evidence concerning the number of payments collected at the door to stop disconnections. According to the compilation of this

[34] Based on my experience, combination electric and natural gas utilities such as Avista typically use a single balance bill and disconnect electric service for non-payment of natural gas service since the absence of electricity means that the natural gas appliances will also be shut off. As a result, this remote disconnect feature for electric service has significant implications for natural gas service as well.
[35] WAC 480-100-128 (6)(k).

information in that proceeding, Avista accepted between 5,000 and 6,000 payments at the door to stop disconnection of service during 2009-2012. These instances represented over 60 percent of the number of disconnections for non-payment reported by Avista in these years.[36] If Avista is allowed to use its AMI system to remotely disconnect service for non-payment, the option for the customer to pay to avoid disconnection will be effectively eliminated and the volume of disconnections will certainly increase.

Q: Did Avista make use of this remote disconnect for non-payment functionality during its Pullman pilot project and with what results?

A: Yes, Avista used this functionality to eliminate the premise visit and remote disconnect service for non-payment during its Pullman pilot project. This functionality was implemented in 2011, 2012, 2013, and 2014. However, it appears that Avista did not disconnect any customer during February 2015 through May 2015 due to the implementation of its new Customer Care and Billing System. Table 3, below, compares the number of remote disconnections on an involuntary basis that occurred with smart meters to the number of disconnections for the same purpose that occurred for 2009 and 2010 prior to installation of smart meters. While disconnections decreased in 2011, I believe this was due to the ongoing installation of the meters during that period. Compared to 2009 and 2010, the 2012 and 2013 disconnections using the smart meters and eliminating the premise visit show a significant upward trend.

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[36] I attach the compilation of utility information obtained in Docket UE-131087 for the period 2009 through 2013 YTD as provided to me by the Public Counsel's Office as Exhibit No. BRA-12.

TABLE 3: Disconnections on an involuntary basis[37]

	Prior to Pilot		During Pilot (meters installed in March 2011)				
	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
January	51	63	29	94	64	74	85
February	73	52	50	89	76	78	0*
March	64	38	38	93	92	60	0*
April	74	73	39	67	86	69	0*
May	100	57	33	76	107	65	0*
June	68	70	39	50	50	51	
July	62	42	47	67	82	65	
August	52	50	25	40	49	38	
September	34	43	25	37	37	44	
October	46	45	28	36	71	39	
November	35	23	49	50	54	62	
December	42	42	56	63	53	54	
Annual Total	**701**	**598**	**458**	**762**	**821**	**699**	

*Due to the Company's implementation of its new Customer Care and Billing system in February, disconnections did not occur during the months of February, March, April and May of 2015. Disconnections resumed on June 1, 2015.

Q: Can you comment on Avista's justification for eliminating the premise visit associated with ensuring employee safety?

A: Avista justifies eliminating the premise visit because of certain incidents where Avista employees have been threatened by customers. I fully endorse the notion that any Avista employee who feels threatened or is confronted by a customer that exhibits dangerous behavior should leave the premises and, if necessary, call on law enforcement authorities to respond to such situations or ensure access to the meter. However, as documented by Avista, these situations are rare[38] and do not justify the notion that the premise visit should be eliminated for the vast majority of customers or that such an area of cost savings should be included in an evaluation of the costs and benefits of AMI deployment.

[37] Source: Avista Response to Public Counsel/Energy Project Data Request No. 017.
[38] Avista Response to Public Counsel/Energy Project Data Request No. 029 documents that a total of 774 such cases have been identified from 2000 to 2015 to date, an annual incident of less than 50.

Q: Have other states recognized the importance of the premise visit in these circumstances and rejected remote disconnection for nonpayment with AMI deployment?

A: Yes. Several states have rejected proposals to eliminate these consumer protections, even though such rejection has resulted in lower savings associated with AMI, on the grounds that the disconnection of residential customers may result in dangerous health and safety conditions due to the loss of essential electricity service. Indeed, the very foundation of the current consumer protection rules is the notion that disconnecting electricity carries important health and safety consequences. State commissions have routinely adopted consumer protections and policies designed to make disconnection the last resort to respond to non-payment. The following states are offered as examples:

- **New York.** A 2007 decision of the New York Public Service Commission explicitly provided that current consumer protections relating to disconnection would be retained in the event that smart metering was implemented, thus preventing New York utilities from relying on any savings associated with remote disconnection of service.[39]
- **Ohio.** Duke Energy filed for a series of waivers from Ohio's consumer protection rules to accommodate its smart grid pilot. The Company requested exemption from the rules requiring a premise visit from company personnel on the day of

[39] The New York Commission stated, "Finally, we remind the companies that termination of service for nonpayment is subject to Home Energy Fair Practices Act (HEFPA) regardless of whether that disconnection is performed by physical (on site) or electronic (remote) service shut off. No utility may utilize AMI for remote disconnection of service for nonpayment unless it has taken all of the prerequisite steps required by HEFPA, including the requirement of 16 NYCRR §11.4(a)(7) that customers must be afforded the opportunity to make payment to utility personnel at the time of termination. This process requires a site visit, even where a remote device is utilized." See Order Requiring Filing of Supplemental Plan, Case Nos. 94-E-0952, 00-E-0165, and 02-M-0454 (December 17, 2007).

disconnection for nonpayment. The rules require a written notice be delivered to the named customer or an adult at the home, or posting of a notice providing information on assistance programs and other options to delay disconnection. Most importantly, the utility representatives are required to accept payment on the account in order to stop the disconnection. The latter requirement is also a part of Ohio statutory law.

The Ohio commission responded by denying this waiver request:

> In considering Duke's request, the Commission is aware of the purpose of Rule 4901:1-18-05(A)(5), O.A.C, which is to notify the occupants at the premise of the pending disconnection and allow the customer one last chance to prevent disconnection by making payment. Without personal notification, or the display of notice, it is possible that customers may be unaware of the pending disconnection, or may believe that the lack of service is the result of an outage. Moreover, the Commission agrees with OPAE's concern that customers who have not paid their utility bill may not have immediate access to text or electronic messaging, despite their selection of such means of notification at an earlier date. Therefore, while the Commission may be willing to discuss alternative notice processes in the future, at this time, the Commission finds that the processes set forth in this rule should remain in force. Accordingly, the Commission finds that Duke's request for a waiver of Rule 4901:1-18-05(A)(5), O.A.C, should be denied.[40]

- **Maryland.** Both Baltimore Gas & Electric, Potomac Electric Co., and Delmarva filed applications for AMI deployment and included the potential savings from relying on remote disconnection for non-payment in their business cases to support this investment. The Maryland Public Service Commission rejected this

[40] Public Utilities Commission of Ohio, In the Matter of the Application of Duke Energy Ohio, Inc. for a Waiver of Certain Sections of the Ohio Administrative Code for Smart Grid1 Pilot Programs, Case No. 10-249-EL-WVR, Entry: June 2, 2010.

proposal and required the utilities to continue to conform to the current regulation that requires the utilities to conduct a premise visit and attempt to contact the customer (and accept payment where offered via credit card) to avoid disconnection where possible.[41]

- **California.** The California Office of Ratepayer Advocate documented a significant increase in involuntary disconnections after installation of smart meter and the use of remote disconnection.[42] While the California Commission has allowed remote disconnection for non-payment with AMI deployment for most situations, the Commission has required a premise visit and attempt to contact be conducted by electric and natural gas utilities in certain circumstances where there is evidence of an adverse medical condition in the household pursuant to a program that provides lower rates for such customers.[43] This "medical baseline" program in California is a more robust program that enrolls hundreds of thousands of customers by California electric and natural gas utilities.

2. Unreliable and Inflated Operational Savings Assumptions.

Q: Are there categories of operational savings that appear inflated and, therefore, unreliable?

[41] In approving BGE's AMI proposal, the Maryland Commission stated, "We note that we have not approved any exemption from our regulations concerning termination of service for non-payment, and that nothing in this Order should be construed as changing this Commission's policies or regulations regarding termination of service for non-payment." Order No. 83531, Case No. 9208, August 13, 2010, at 19.

[42] According to a study by the California Division of Ratepayer Advocates, the rate of disconnection of residential customers increased in PG&E's service territory once the remote disconnection switch was used with the new metering system. The increase in smart meter shutoffs appears to be disproportionately large compared to shut-offs of homes with traditional meters. Division of Ratepayer Advocates, California Public Utilities Commission, "Status of Energy Service Disconnection in California" (November 2009), available at http://www.dra.ca.gov/NR/rdonlyres/2A0C5457-56FC-4821-8C4D-457F4CF204D1/0/20091119DRAdisconnectionstatusreport.pdf.

[43] Interim Decision Implementing Methods to Decrease the Number of Gas and Electricity and Electric Utility Service Disconnections, Rulemaking 10-02-005 (CPUC February 4, 2010), pp. 1-4. 11, 12, available at http://docs.cpuc.ca.gov/PUBLISHED/Graphics/113251.PDF

A: Yes. I believe the savings estimates for elimination of energy theft and conservation voltage reduction are both likely overstated.

First, Avista claims a savings equal to 0.4 percent of its total revenues based on the elimination of energy theft, equal to $2.24 million in additional revenues for natural gas and electric service.[44] This amount is based on "Avista's own experience, as well as a range of estimates from the utility industry," pointing to a "range of opportunity between 1 and 3 percent of total utility revenue" identified by some utilities. Avista based its savings estimate of 0.4 percent of total revenues for this benefit total, pointing to other utilities and research studies that justify this assumption."[45]

However, Avista's currently documented revenue loss due to service diversion is 0.012 percent of total revenues.[46] The citations that Avista has given for increasing its avoided revenue loss do not reflect any experience by Avista and many of the citations reflect utilities with vastly different service territories (urban and rural), rates, and demographics compared to Avista. As a result, Avista has estimated a revenue enhancement or avoided loss of revenues that is not based on its own experience in any meaningful way and reflects an estimate that is questionable.

A second example of Avista's overstated operational savings is Avista's estimate of savings relating to conservation voltage reduction or "distributed system energy efficiency." This area of expected savings relates to Avista's ability to use the AMI system to further optimize the already installed conservation voltage reduction technology, because Avista can rely on the actual voltage at the customer's premises

[44] Kopzcynski, Exhibit No. DFK-5, at 16.
[45] *Id.*
[46] *See*, Exhibit No. BRA-13, Avista Response to Staff Data Request No. 114.

rather than relying on transformer voltage readings to reduce feeder voltage and still meet minimum requirements. The incremental estimate associated with the AMI system to further lower the voltage levels is estimated at 0.5 percent of total kWh or 13.8 million kWh with an annual value of $1,186,709 in energy savings.[47]

However, Avista's own evaluation of this same functionality did not identify the incremental benefit for the measured voltage reduction results associated with AMI as opposed to the voltage reduction measures for other circuits with technologies installed on the distribution system pursuant to Avista's current energy efficiency programs.[48] Therefore, I view Avista's alleged incremental usage reductions due to the AMI feature alone as questionable and not defensible. I have not evaluated the alleged usage reductions associated with Conservation Voltage Reduction in general as that program is one that is subject to the Commission's review as part of Avista's efficiency programs.

C. Avista's Estimated Customer Direct Savings Are Unsupported and Should Be Rejected

Q: Please summarize Avista's "customer direct benefits" included in its business case for AMI deployment.

A: Avista claims that there are two programs included in its AMI proposal that will provide direct customer benefits in the form of bill savings totaling $60.1 million. These two programs are: (1) energy efficiency actions to reduce usage as a result of learning more about hourly energy usage through Avista's web portal; and (2) a calculation of customer value associated with reduced outage hours. As I will document below, these so-called

[47] Kopzcynski, Exhibit No. DFK-5, at 15.
[48] Avista Response to Public Counsel/Energy Project Data Request No. 001, Attachment B. This evaluation of the impact of conservation voltage reduction focused on feeders in the Pullman project and feeders unrelated to the Pullman pilot project and was done to provide the required analysis for Avista's energy efficiency portfolio, the funding for which is unrelated to the AMI project. As such, it was not an analysis of the incremental benefits of the AMI system to the already implemented conservation voltage reduction program.

"customer savings" program estimates cannot be justified and the assumed savings should be rejected.

D. Usage Reductions due to AMI.

Q: Please explain your objection to Avista's alleged customer benefit in the form of reduced bills as a result of usage reductions induced by the AMI information.

A: According to Mr. Kopczynski, customers will save money on their bills by being exposed to the hourly interval data on Avista's web portal that will include "energy conservation tips," and subsequently allow customers to take steps to reduce their energy usage.[49] The Company has included $491,082 for this estimated customer savings in its business case.[50] However, Avista's own Pullman pilot program failed to document any statistically valid usage reduction or conservation actions for customers with AMI meters and access to the same web portal that the Company is relying upon for this benefit at full-scale deployment. Avista's own consultant[51] concluded:

> Regression models were fit to estimate both average monthly reductions and average monthly percentage reductions in both electricity and natural gas consumption. No models produced evidence of a decrease in electricity consumption. However, the percentage reduction model produced estimates of statistically significant reductions in monthly natural gas consumption. The local average treatment effect estimate is 44%. While this effect is very large, and the impact is significantly different from zero, the estimate is very imprecise. The 95% confidence interval for impacts for customers who accessed the website range from 83% to 5%. So, while these results suggest there may have been an effect of exposure to interval information at the website, it may be quite small and may be a statistical anomaly.[52]

[49] Exhibit No. BRA-14, Avista Response to Staff Data Request No. 109 confirms that there are no incremental costs in the AMI budget for additional efficiency programs or outreach activities so that any reference to "conservation tips" relied upon by Avista in supporting this savings estimate reflects the use of current efficiency programs and budgets.
[50] *See*, Exhibit No. BRA-15, Avista Response to Staff Data Request No. 112.
[51] Exhibit No. BRA-16, Avista Response to Public Counsel/Energy Project Data Request No. 001, Attachment C: Freeman, Sullivan, & Co., "Avista Smart Grid Demonstration Project Study and Analysis of Customer Energy Usage," (October 22, 2013). The quotations are from the Executive Summary.
[52] Exhibit No. BRA-16, Avista Response to Public Counsel/Energy Project Data Request No. 001, Attachment C, at 2.

. . .

For the most part, neither customers who received access to interval data nor those who did not reported making any changes in the way they used electricity on the basis of information presented by the Energy Analyzer feature; 65% of exit survey respondents reported that they did not or were not sure if the Energy Analyzer inspired any changes in how they use electricity.

There is similarly no evidence offered by the initial and final surveys to suggest that common actions that customers can take to save energy were more likely to be taken by those who had access to interval data. During the course of the demonstration project, significantly more customers reported taking the following actions in the exit survey than the initial survey, but these increases in energy efficient activity and investment were consistent across treatment and control customers:

- Install weather seals on doors and windows;
- Insulate water pipes;
- Install low-flow water heads;
- Reduce water heater temperature;
- Replace incandescent lights with compact fluorescents; and
- Install insulation in walls or ceilings.[53]

. . .

Focus group discussions suggest that the current website has several serious design flaws that undermine its usefulness for informing and educating customers about energy use in their household. They are:

- The energy use-related information is not intuitively located on the landing page. As a result, very few customers were exposed to the interval usage information made available by Avista's advanced meters, undermining the experiment. The tile where the advanced meter-based usage information can be accessed appears to many users as a marketing crawl, much like those found on the right-hand side of Yahoo!, Google and other commercial websites. Others thought the smart meter tile content was actually about the meter installation program. No one reported understanding that the tile contained smart meter data.
- Customers only reported using the Energy Analyzer once or twice before determining there was no useful information there and subsequently ignoring it. They did not comprehend the underlying logic of the tool, and thus did not understand the necessary order to properly experience the Energy Analyzer.

[53] Exhibit No. BRA-16, Avista Response to Public Counsel/Energy Project Data Request No. 001, Attachment C, at 3.

- Most customers have no motivation for accessing the information and tools provided on the website and find the information provided on the website to be of little use. It is not that some are not hungry for information about their energy use; it is that they are not hungry for the kind of information currently provided. Consequently, most customers do no consult the energy use information on the website more than once. Part of the problem is that they really have no need for most of the information that is provided.[54]

Q: Did Mr. Kopczynski's testimony refer to these findings from the pilot project or rely on them to develop estimated customer bill savings?

A: No. Rather, Avista's explanation for this value in its business case appears to be a reflection of what they have derived from some utility publications that allege such benefits from its AMI and web portal experiences.[55] However, it is inappropriate and unreasonable for Avista to suggest a significant level of customer bills savings when the Company's own pilot program did not achieve a similar result.

E. Outage Reduction Savings.

Q: Please discuss your concerns with Avista's reliance on certain monetary values associated with outage reductions in it AMI business case.

A: Avista's other "direct customer benefit" program relies on an estimated "value" that it ascribes to customer benefits as a result of reducing the number of or the length of outages that the Company alleges will occur as a result of AMI deployment and the interconnections between the AMI system and the Outage Management System (OMS). My testimony does not address the Company's assumptions about the impact of AMI on statistically valid outage reduction levels or incidents because I acknowledge that some improvement in outage restoration performance is likely to occur as a result of additional

[54] Exhibit No. BRA-16, Avista Response to Public Counsel/Energy Project Data Request No. 001, Attachment C, at 4.
[55] *See*, Exhibit No. BRA-15, Avista's Response to Staff Data Request No. 112 and Attachment A.

distribution investments coupled with the AMI system. I have not, however, examined the degree to which AMI alone might impact outage restoration performance. It is likely that the distribution system investments other than AMI that Avista implemented in its Pullman, WA pilot project, and that the Company is recommending in this rate case, will have the most significant impact on outage restoration performance.

More importantly for my analysis, is that the most significant defect in Avista's prediction of customer "savings" in its AMI business case relates to the calculation of the dollar amount of value that is multiplied by the number of estimated outage minute reduction that is assumed will result from AMI deployment. These customer dollar values are derived from an Interruption Cost Estimator (ICE) "calculator" that the U.S. Department of Energy (DOE) uses in it evaluations of smart grid projects. The following is Avista's description of how the customer "values" were calculated in its business case:

> There are two parts to determining the direct customer savings associated with advanced metering: the estimate of the overall reduction in outage duration expected, and the direct cost to a customer that is associated with an outage of a given duration. To set a reasonable expectation for reduction in outage duration, Avista researched the values for reduced outage times that were reported by other utilities, as associated with advanced metering. We chose to use a conservative value based on those reported utility experiences, and assumed that a 5% reduction in outage duration could be achieved by integrating outage alarms from advanced meters with the outage management system. We used the Department of Energy's ICE calculator (Interruption Cost Estimator) to quantify the cost of an outage event to our customers, based on Avista's actual reliability figures. The average impact to a residential customer is $5.41 per outage event, with the input values to the ICE calculator being: SAIFI = 1.08, SAIDI = 150 and CAIDI = 138.9. Using the same input values, the ICE calculator projected a per-event cost of $8,500 for medium and large commercial and industrial customers, and $1,584 per outage for small commercial and industrial customers. The purpose of quantifying outage costs to our customers is to demonstrate how a reduction in overall outage duration will provide a direct financial benefit to them.

> Accordingly, a reduction in outage duration of 5 % resulted in a total annual customer benefit of approximately $2.2 million.[56]

Q: So, is it correct that Avista's customer direct "savings" associated with estimated outage reductions will not actually appear on customer bills, but are a reflection of a calculation that assigns a hypothetical value to fewer outages?

A: Yes.

Q: Are you familiar with the Interruption Cost Estimator (ICE) method of calculating customer value associated with reduced outages?

A: Yes. In my opinion, use of this methodology for these purposes should be rejected. First, the methodology used by the DOE, in its ICE calculator, is not one that has been used by state regulatory commissions pursuant to any litigated or evidentiary consideration of the methodology, and there is reason to question whether it is appropriately used in the context of retail electric utility ratemaking decisions. The DOE methodology was never adopted pursuant to any adjudicatory or formal proceeding, so it has not been "tested" in a formal hearing with evidence and argument. Rather, this DOE method of calculating the benefits of its smart grid projects funded by ARRA has no force or effect on state regulatory commissions.

Second, the methodology multiplies a hypothetical value by an estimated amount of outage reduction and does not result in any actual bill savings for any customer with the possible exception of commercial and industrial customers who will be able to operate their businesses and gain income or profits by having a higher level of productivity. These same assumptions cannot be applied to residential customers; there is certainly little or no direct economic benefit to residential customers when an outage is

[56] Avista Response to Staff Data Request No. 106.

avoided. In fact, under this proposal, customer bills will increase because: (1) they will be required to pay for the AMI system, (2) there is no lost revenue for residential customers during an outage, and (3) increased usage for the power during minutes that would otherwise be subject to outages. Obviously, outages are not a positive for residential customers, but to equate the hypothetical value that residential customers might identify in response to a survey question with actual bill savings, as Avista has done here, is unreasonable. Finally, there are significant defects in the studies that DOE relied upon to make use of this calculator, as discussed below.

Q: Please explain the background of DOE's ICE calculator.

A: This calculator was developed based on a 2009 Report published by the Lawrence Berkeley National Laboratory that summarized the results of utility surveys of customers that sought to determine what dollar amount of value customer groups would assign to avoiding an outage.[57] This report summarized other studies that had attempted to place a value on improving customer reliability of service. This report was not done in connection with Smart Grid or AMI investments. As stated in the report's discussion of the data available on residential customer value of service reliability:

> The most important difference is that most residential studies of interruption costs or value of service do not focus on direct worth or cost estimates; rather they utilize willingness to pay or willingness to accept measures. Developing these measures generally involves describing a scenario to a residential customer and then asking them what they would be willing to pay to avoid this specific interruption or what they would be willing to accept as compensation (usually described as a credit on their bill) in order to put up with the interruption. The primary reason for using these alternatives to direct cost is the assumption that much of the "cost" of an interruption for residential customers is associated with the hassle,

[57] Freeman, et. al., *Estimating Value of Service Reliability for Electric Utility Customers in the U.S.,* Lawrence Berkeley National Laboratory, **LBNL-2132E** (June 2009). I will refer to this as the Berkeley Report. I attach this Report as Exhibit No. BRA-17.

> inconvenience, and personal disruption of the interruption, rather than direct out-of-pocket expenses, like buying candles or flashlight batteries. In this situation, customers may be able to more accurately represent the value of reliability by expressing their willingness to pay to avoid an interruption (or their willingness to accept some type of credit to accept an interruption) rather than calculate an out of pocket cost or savings.[58]

Based on the summary of the survey results in several states, the report concluded that interruption costs per event for residential customers are higher in the summer than in the winter and significantly higher on weekends than on weekdays. But the report emphasized that "…caution must be used in interpreting the point estimates as different groups of customers responded to different combinations of scenario attributes."[59] The report also presented the results of some of the surveys that had gathered demographic data on the respondents. Of particular importance, the data showed a distinct difference for lower income customers compared to higher income customers. The difference between a low-income (defined as those with average income of less than $25,000) household and a high-income (defined as those with average income of greater than $100,000) household ranges from $3.40 to $4.40 for a one-hour interruption to $9.40 to $11.90 for an eight-hour interruption. Overall, the models show average one-hour summer afternoon interruption costs for residential customers in the $2 to $5 range.

Q: Does the Berkeley Report recognize the controversy about assigning a value that customers would be willing to pay to avoid outages based on survey data?

A: The Report recognizes the controversial nature of relying on such data for public policy decisions:

> There has been a long simmering debate about the validity and reliability of customer reported interruption costs measured using survey techniques.

[58] Ibid, at 59.
[59] Ibid, at 59.

> There are two central criticisms of the use of survey methods to estimate customer interruption costs. The first applies generally to interruption cost surveys that use hypothetical interruptions as a framework within which to ask questions about interruption costs. In particular, there is concern that cost estimates based on hypothetical circumstances may over or under estimate the costs that occur under real conditions. There is no empirical evidence one way or another as to whether this concern is justified. A second concern applies principally to the measurements of interruption costs for residential customers that rest on what are called contingent valuation methods or stated preference methods. Contingent valuation studies have been the subject of considerable controversy – particularly as applied to the measurement of damage arising from environmental problems. The validity and reliability of various approaches to damage cost measurement using contingent valuation have been discussed at length in the literature. We cannot do it justice in the space available in this format. Those interested in this debate should see Mitchell and Carson (1989) or Horowitz and McConnell (2002).[60]

Q: Since the publication of this 2009 Berkeley Report, have there been evaluations of the contingent valuation method that are relevant to how the Commission should treat this type of analysis?

A: Yes. A recent article published in the Journal of Economic Perspectives by a Professor of Economics at MIT debunks the "contingent valuation" method (used in the ICE calculator) as a means to obtain reliable data to input value into certain public policy decisions.[61] One of the key aspects of this method is the assumption that what customers say they will pay is a predictor of what customers actually do. According to the author, respondents to these surveys cannot be relied upon to provide a meaningful indication of the actual preferences (what they will do as opposed to what they say they will do or value in a hypothetical survey question) and that such surveys do not take into account the budget needs of respondents.

[60] Exhibit No. BRA-17, p. 22. Berkeley Report at n. 3, p. xviii.
[61] Hausman, Jerry, "Contingent Valuation, From Dubious to Hopeless," The Journal of Economic Perspectives, Volume 26, Number 4, Fall 2012 , pp. 43-56(14). Available at http://www.ingentaconnect.com/content/aea/jep/2012/00000026/00000004/art00003

Q: Please summarize the reasons why you urge the Commission to reject any reliance on the ICE calculation to ascribe direct customer benefits from Avista's AMI proposal.

A: I offer the following additional concerns about relying on such survey data to determine whether Washington residential customers are willing to pay a specific dollar amount per kWh to avoid an interruption of service, thereby justifying Avista's business case for AMI deployment:

- The multiplication of any dollar amount of "value" by an estimated number of outage hours, or events that will be avoided due to AMI deployment, is fraught with questionable assumptions not only about the dollar amount assigned as the "value," but Avista's estimation of the results of AMI deployment in customer outage impacts. In other words, the mathematical model (multiplying the value times the number of outage hours avoided) assumes that the Company's estimates of the impacts of its projects on reducing outage hours are correct.
- None of the survey instruments (to evaluate how questions were asked or worded and in what context) in the Berkeley Report are available for public review and analysis, and none of the survey results reflect Washington customer information.
- The assigned value assumes every customer will experience the benefits of these investments and avoid the outages predicted, but that is not correct. The calculation fails to reflect the fact that not all customers will benefit from these investments, but all customers will pay for them under Avista's cost recovery proposal. In other words, under Avista's valuation methodology, all customers would have to pay for the AMI investment, but whether all customers experience

the predicted outage-related benefits to the same degree or frequency is not likely. The use of the dollar value derived from the averages reported in the various survey results as proposed by Avista fails to take into account the survey respondents' lack of knowledge about the implications of agreeing to a numerical value when they may not experience the benefits associated with the higher degree of reliability.

- The Berkeley Report summary of the survey data reflects a wide range of values for a wide range of outage events and lengths. It is questionable to combine all these results into a single number used in DOE or Avista's calculations.
- There are no comparable survey results available for natural gas service to support the Company's estimates of "value" for a cost benefit analysis for the natural gas service investments.
- The "value of service" approach does not take into account the choices that customers may make when confronted with otherwise applicable bill increases, mandates and surcharges to pay for renewable energy, efficiency programs, universal service programs, etc. In other words, the surveys solely focus on reliability and fail to ask the key questions about choices that customers would need to make to pay for all the mandated requirements associated with regulated electric utility service in Washington or elsewhere.

Q: Are you aware of any other state that has accepted this valuation methodology to approve AMI investments?

A: No. While I believe that some states, possibly including Washington, include this type of analysis in distribution reliability investment plans or to compare the potential value of

one set of reliability investments to other options, I cannot recommend that the Commission make use of such a methodology to assign a hypothetical dollar amount of benefit to offset costs in an AMI business case for the reasons I have set forth here.

F. Summary on Direct Customer Savings.

Q: Please summarize your conclusions concerning Avista's "direct customer savings" in its AMI business case.

A: Avista's alleged customer "savings" of $60.1 million for energy efficiency and reduced outage impacts should be rejected. Correctly removing these assumed benefits from the evaluation would further confirms my overall conclusion that the AMI costs will exceed any reasonable calculation of customer benefits for Avista at this time.

VI. THE COMMISSION SHOULD NOT RELY ON UNQUANTIFIED AND "INTANGIBLE" FUTURE BENEFITS TO APPROVE AMI

Q: Mr. Kopczynski recommends that the Commission look beyond measurable benefits and rely on potential or unquantified benefits to support AMI deployment and cost recovery. Do you agree with his recommendation?

A: No. Avista has submitted a long list of potential future benefits that might result from AMI deployment in the future.[62] Most or all of these potential benefits would require Avista, or its customers,[63] to incur additional costs that are not identified in this proceeding or included in the estimated costs identified in the business case. For example, Avista would not be able to design, implement, and undertake consumer education and outreach for any demand response program, time-varying rate option, or prepay electric service without additional costs to integrate such programs into its billing

[62] Exhibit No. DKS-1T, at 17, includes a list of these purported future benefits.
[63] As discussed previously in my testimony, regarding the example of possible customer costs associated with the Home Area Network.

system and conduct the necessary outreach and education that naturally flows from such programs.[64] Furthermore, other benefits are so minor as to not be worthy of significant consideration to justify AMI deployment.[65] It would not be fair or reasonable to approve this expensive AMI investment based on vague and undefined benefits that are not actually being proposed or for which incremental costs have not been identified. The issue of unknown costs is particularly a concern since, as I have documented, the costs of AMI will exceed a reasonable calculation of benefits in this proceeding. It might be appropriate to identify future potential programs and benefits in a proceeding where the quantified benefits clearly and conclusively exceed the costs, but that is not the case here.

Q: Included in this list of unquantified and undefined benefits are demand response programs, time varying rate options, and prepay electric service. What is your opinion of these programs in light of Avista's AMI proposal?

A: Unlike most utilities that propose AMI deployment, Avista does not include a plan for any demand response or other time-varying rate options. Nor does Avista rely on any such programs to deliver potential customer benefits that might reduce not only individual customer bills who participate in these programs (by earning credits for demand response actions or shifting usage to take advantage of lower off-peak prices), but could also reduce electricity prices for all customers (by reducing the cost of electricity generated or purchased in the wholesale market). This is because, according to Avista, there are no apparent benefits for its Washington customers to justify the

[64] *See*, Exhibit No. BRA-18, Avista Response to Public Counsel/Energy Project Data Request No. 044, which states that Avista has not proposed new pricing mechanisms in its advanced metering business case and that the Company has not conducted any analysis of such programs or customer interest in such programs that might be enabled by AMI. As a result, there are no costs to implement time of use or other pricing programs included in the business case.

[65] E.g., text alerts on customer usage.

implementing such programs at this time as the current peak load is already managed due to the Company's reliance on hydropower.[66] As such, Avista has properly identified that the primary benefit of direct load control, demand response, and time-varying rate programs are to reduce peak demand, since these programs do not typically provide any cost-effective efficiency or overall usage reduction.[67] In fact, Avista conducted an assessment of whether a time-of-use rate option would be valuable or cost effective over 10 years ago, and concluded that it could not be justified in terms of benefits in generation supply costs.[68] As a result, Avista's current suggestion that ratepayers should pay for an expensive AMI investment on the slim possibility that such programs might be determined to be valuable in the future does not make sense.

Finally, Avista's mention of prepay electric service is of significant concern. These programs represent a degradation of service for low-income and payment-troubled customers who suffer involuntary and unrecognized disconnection of essential electric service and lose the consumer protections built into the current regulatory system that ensure proper notice, opportunity for payment arrangements, retention of service with medical certifications, and other safeguards that are designed to prevent disconnection where possible or when it is likely to cause significant adverse impacts on household health and welfare. As a result, to suggest that AMI systems might result in large-scale prepay electric service programs without acknowledging the potential adverse consumer protection and risks to health and safety that must be considered when developing such a

[66] *See*, Exhibit No. BRA-19, Avista Response to Public Counsel Data Request No. 057.
[67] Regulatory Assistance Project, "Time Varying and Dynamic Rate Design," (July 2012). Available at: http://www.raponline.org/search/site/?q=Time%20Varying%20Rates. This Report states, "Moreover, as the dynamic pricing pilots around the United States and elsewhere are consistently demonstrating, retail responsiveness to price rarely manifests itself as overall reductions in energy use, but almost entirely in the shifting of use in time—that is, it mostly affects demand for capacity, not demand for energy." Foreword, at 6.
[68] Docket UE-060649, Avista Comments re: PURPA Standards, filed August 11, 2006, p.2.

program is another example of Avista's casual approach toward identification of "intangible" future and undefined "benefits" for AMI. I do not agree that the development of a pre-pay electric service program is a potential benefit.

VII. AVISTA'S AMI PROPOSAL SHIFTS THE RISKS OF NONPERFORMANCE TO CUSTOMERS AND FAILS TO INCLUDE ANY PERFORMANCE STANDARDS TO MEASURE EITHER COSTS OR BENEFITS

Q: Does Avista's AMI proposal include any performance measurements or guarantees that either its estimated costs or estimated benefits are accurate?

A: No. Avista has proposed to implement its AMI deployment and recover its costs without any recommendations to ensure that its estimated costs will not be higher or that its estimated benefits will actually occur in the amount identified in its business case. As a result, customers will bear 100 percent of the risk that this project will be cost effective and actually benefit customers. As I have documented throughout my testimony, the risk that costs will exceed the very narrow margin of estimated benefits is extremely high for Avista's AMI proposal.

Q: Do you recommend reporting requirements and performance standards for AMI deployment by Avista?

A: I cannot reasonably recommend reporting requirements and performance standards for an investment that I have documented will not be cost-effective and for which the costs will significantly exceed any reasonable estimate of customer benefits. In other words, reporting requirements and performance standards will not cure this AMI proposal in my opinion. However, the lack of any inclusion of any reporting or performance standards is another example of the incomplete manner in which Avista has proposed this expensive investment in this proceeding.

I can identify state regulatory commissions that have required reporting requirements and performance guarantees for AMI deployment, but in those situations the utility's business case documented benefits that greatly exceeded the predicted costs.[69] Unfortunately, I can also document states where the regulatory commission responded to significant cost overruns for AMI deployment by allowing the utility to pass through those excess costs to ratepayers.[70]

VIII. CONCLUSION

Q: Based on your analysis and evaluation, should the Commission approve Avista's proposed AMI deployment and recovery of costs from ratepayers?

A: No. Avista's AMI proposal is not sufficiently developed or supported by sound evidence to approve at this time. It is likely that Avista's costs will exceed those included in its business case and it is highly likely that Avista's benefits, particularly those related to customer "savings," will not occur as identified in its business case. In such a situation, to rely on unquantified and undeveloped future programs and policies would be unreasonable.

Q: Is it important to consider that Avista is not proposing AMI deployment in its service territory in Idaho or Oregon?

A: Yes. According to Avista, AMI deployment in those states would not be cost-effective because Avista has already invested in Automated Meter Reading (AMR) in those

[69] For example, the Maryland Public Service Commission refused to allow cost recovery for AMI from ratepayers until its electric utilities agreed to a stakeholder driven set of reporting requirements and performance metrics to track the costs and benefits that were set forth in the respective AMI business case. An example of the quarterly reporting required for Baltimore Gas & Electric can be reviewed at the Maryland PSC's website for Case 9208: http://webapp.psc.state.md.us/Intranet/Casenum/NewIndex3_VOpenFile.cfm?ServerFilePath=C:\Casenum\9200-9299\9208\287.pdf

[70] Oncor in Texas and PG&E in California each had significant cost overruns due to the installation of metering and/or communication equipment that was later determined not to meet required functionalities and the additional costs were passed through to ratepayers.

jurisdictions, thus eliminating much of the potential savings of AMI associated with remote meter reading.[71] While Avista proposed AMR for its Washington service territory at one time, this proposal was withdrawn. I recommend that the Commission at least require Avista to compare the costs and benefits of AMR with AMI prior to considering any further approval of AMI costs. Furthermore, it is also possible that in the future the costs of AMI for all three jurisdictions could be more cost-effective and less expensive for ratepayers if this technology was considered on a Company-wide basis. However, at this time there is no evidentiary basis for concluding that this AMI investment as proposed will provide sufficient value or benefits to Washington customer to "go it alone."

Q: Is your recommendation that the Commission reject AMI technology generally?

A: No. My testimony is a reflection of the business case that Avista has submitted in this proceeding to justify imposing over $223 million in costs on ratepayers—now estimated even higher in the Company's most recent update in discovery—for illusory and undocumented benefits that are unlikely to offset these costs. Furthermore, since Avista presumes that it will allocate AMI costs to customer classes based on the replacement of their current meters,[72] Avista will likely seek to recover the vast majority of these costs from residential and commercial customers. Avista has the option to redesign its proposal at some point in the future. If the Company chooses to do so, it should rely on realistic and defensible benefits that will measurably offset ratepayer costs for this program in rates and bills. Any AMI proposal should also be accompanied by

[71] *See*, Exhibit No. BRA-20, Avista Response to Public Counsel Data Request No. 052.
[72] *See*, Exhibit No. BRA-3, Avista Response to ICNU Data Request No. 076, noting that it intends that AMI costs would be applied to rate schedules other than Schedule 025 serving industrial customers since, "many of the industrial customers we serve will continue to be metered under the Company's existing MV-90 program."

performance standards and ratemaking policies to ensure that cost recovery is linked to the delivery of the promised benefits.

Q: Does this conclude your testimony at this time?

A: Yes, it does.