

1 **Q. What will your testimony address with regard to AMI, and what will be**  
 2 **addressed by your fellow Company witness Mr. DiLuciano?**

3 A. I will provide a Project overview that discusses the implementation of the  
 4 various phases of the Project, including the completion dates of each, attesting to its “used  
 5 and useful” status. I will discuss, generally, Project costs and benefits which have become  
 6 better defined over time, as we have implemented the Project over the last four years. Finally,  
 7 I will speak to the net benefits of AMI, both quantified and unquantified, and explain why it  
 8 is such an essential platform for meeting customer needs

9 **Q. Who else will be testifying on behalf of the Company with respect to AMI?**

10 A. Mr. DiLuciano, as Director of Electrical Engineering, will sponsor the detailed  
 11 report entitled “Avista Utilities Advanced Metering Infrastructure (AMI) Project Report”,  
 12 (hereafter referred to as “Report”), that was originally filed with the Commission on August  
 13 31, 2020. After filing the Report, and as the Company was accounting for revenue  
 14 requirement offsets for avoided costs, Avista found an inadvertent error overstating the  
 15 amount of savings achieved for manual meter reading in 2018. Financial benefits in the Report  
 16 (on a nominal and net present value basis) ~~have been~~were then adjusted accordingly, in  
 17 addition to making several non-substantive grammatical edits. Additional revisions were also  
 18 made to the Report in 2021, precipitated by Avista’s recent decision to read the meters of  
 19 approximately 17,500 natural gas customers served in our “natural gas only” areas using  
 20 mobile field collectors instead of the planned deployment of AMI fixed network  
 21 communications as discussed in further detail below. These revisions are provided in both  
 22 clean and legislative format as Exh. JDD-2r (Revised-Clean) and Exh. JDD-2r (Revised-  
 23 Legislative), respectively. ~~The updated Report is marked as Exh. JDD-2.~~ While Mr.

1 DiLuciano will address the specifics of that Report (referenced as Exh. JDD-2r (Revised-  
 2 Clean) hereafter), my testimony will draw from the Report’s findings and conclusions.<sup>43</sup>

3 **Q. Ms. Rosentrater, would you please state the reasons for revisions made on**  
 4 **March 5, 2021 to your Direct Testimony?**

5 **A. Yes. As stated previously and in the revised introduction to the Report**  
 6 **appearing as Exh. JDD-2r (Revised-Legislative) and Exhibit No. Exh. JDD-2r (Revised-**  
 7 **Clean), this revision was precipitated by Avista’s recent decision to read the meters of**  
 8 **approximately 17,500 natural gas customers served in our “natural gas only” areas using**  
 9 **mobile field collectors instead of the planned deployment of AMI fixed network**  
 10 **communications. This decision was based primarily on delays in the release of software and**  
 11 **firmware updates needed for natural gas modules to communicate reliably in these areas.**  
 12 **While this decision was determined to have nominal impacts on the net financial benefits of**  
 13 **the AMI project, the Company felt it was important to reflect these known changes in the**  
 14 **revised Report. Further, because the Company is updating the Report to reflect the change in**  
 15 **“natural gas only” areas, we have also included other known changes in costs and benefits**  
 16 **based on the more recent information provided by the Company in response to several recent**  
 17 **data requests in this case. Accordingly, we have taken this opportunity to review these and**  
 18 **any other known changes that impact the project financials to create a revised Report that**  
 19 **reflects as much actual and updated information as is practical at this point in the process.**

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<sup>43</sup> As discussed by Company witness Ms. Andrews in Exh. EMA-1T, the Company pro forms the Washington electric and natural gas portions of the AMI project into its Electric and Natural Gas Pro Forma Studies, reflecting net plant additions, incremental expenses and savings above historical 2019 test period levels, as well as the impact of the Company’s proposed amortization of regulatory deferral balances, associated with the deferral of all depreciation expense on the new AMI investment and deferral of retired electric and natural gas meters, during the rate effective period.

1 In addition, in making the Report revisions, an additional error was discovered  
 2 regarding jurisdictional allocations, which was corrected; all of which is reflected in Exh.  
 3 JDD-2r (Revised-Clean).

4 **Q. What was the impact of these corrections on the tabulation of net benefits?**

5 A. The sum of these incremental changes in capital and O&M costs and financial  
 6 benefits actually resulted in a modest improvement in the overall lifecycle net benefits for the  
 7 project from \$50.3 million, as filed in this case, to the current forecast of \$56.3 million. The  
 8 following summarizes the key changes captured in the Report that caused these  
 9 improvements:

- 10 a. Reduced capital and O&M costs for meter deployment and collection infrastructure,  
 11 and the refresh of natural gas meter modules.
- 12 b. Reduced benefits for regular meter reading, special meter reading, natural gas meter  
 13 module refresh, slow and failed meters, stopped meters, estimated bills, bill inquiries,  
 14 billing analysis and rebilling.
- 15 c. Updates reflecting actual operating costs through year 2020, and refined forecasts.
- 16 d. Updated actual costs and benefits of Customer Meter Base Repairs, which results in a  
 17 reduction in capital cost for repairs and corresponding customer benefits.
- 18 e. Revision of costs and benefits generally based on more up-to-date information  
 19 supporting a refinement in lifecycle forecasts.
- 20 f. Correction in the prior report financials of an inadvertent double counting of capital  
 21 cost for future meters.

1 g. Reduction in operating costs forecasted in year 2037, which were initially included for  
2 the full year. Operating costs now match the expected benefits in 2037, which are  
3 included for only the first quarter of that year.

4 Secondly, correcting for the improper use of an allocation factor of 56.55% and using the  
5 current regulatory allocation of 63.72% meant that overall net benefits were overstated by  
6 approximately \$2.7 million.<sup>44</sup> Accordingly, revised tabulations of net benefits is \$56.3  
7 million.

8 **Q. What other testimony has been revised to reflect these changes?**

9 A. In addition to my testimony, provided as Exh. HLR-1Tr (Revised-Legislative)  
10 and Exh. HLR-1Tr (Revised-Clean), corresponding revisions were also made to the testimony  
11 of Mr. Dennis Vermillion (Exh. DPV-1Tr) and Mr. Josh Diluciano (Exh. JDD-1Tr Revised-  
12 Legislative) and Exh. JDD-1Tr Revised-Clean)), as well as Mr. Diluciano's Exhibit No. 2  
13 (Exh. JDD-2r (Revised-Legislative) and Exhibit No. Exh. JDD-2r (Revised-Clean)).

14 **Q. Lastly, since the testimony on the issue of AMI was filed on October 30,**  
15 **2020, would you provide a brief update on the final status of the Project?**

16 A. Yes. Less than 300 meters have yet to be installed, out of a total of 413,457.  
17 These remaining meters will be installed during the pendency of this case. For all practical  
18 purposes, the Company's AMI system is deployed, operating, and is used and useful in  
19 providing service to our customers.

20 **Q. Would you please summarize the conclusions of the Report?**

21 A. Yes. The following summary highlights are discussed at page 1 of the Report  
22 (Exh. JDD-2r (Revised-Clean)):

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<sup>44</sup> Approximately \$2.15 M capital and \$0.5 M O&M on a net present value basis.

- 1 • Advanced metering infrastructure (AMI) will actively promote the objectives of  
2 the Clean Energy Transformation Act (CETA) by creating the necessary platform  
3 for changing customer behaviors, as well as furthering necessary system  
4 modifications and efficient and cost-effective delivery of service.  
5
- 6 • The “quantifiable” net benefits to customers over time are real — and will only  
7 increase over time as the Company “maximizes” the full potential of AMI (perhaps  
8 in ways not yet imagined).  
9
- 10 • AMI is, ~~in effect,~~ already operational on Avista’s system, with well over 998% of  
11 electric meters and 95% of natural gas modules deployed as of September 1, at year  
12 end 2020. ~~The remaining 20,000 natural gas modules will be installed and~~  
13 ~~functioning in the second quarter of 2021 (during pendency of this general rate~~  
14 ~~ease). The remaining capital cost to deploy modules and communications in the~~  
15 ~~second quarter of 2021 is estimated to be \$1.3 million, well under one percent of~~  
16 ~~total capital costs.~~  
17
- 18 • Accordingly, “costs” ~~have are already been essentially known or~~ “locked down”  
19 (and are more than \$4556 million under what was anticipated in the 2016  
20 information provided in Avista’s prior rate case).<sup>45</sup>  
21
- 22 • The “benefits” have been refined, and in some cases expanded, as the Company  
23 has gained additional experience, and are sufficiently known to demonstrate a “net  
24 benefit” over time. The overall nominal value net benefit is \$~~248.138.2~~ million,<sup>46</sup>  
25 and on a net present value basis is \$~~560.3~~ million. These “benefits” are only the  
26 hard-dollar benefits that have thus far been quantified, without taking into account  
27 many other “non-quantified” (but real) benefits such as safety, power quality,  
28 convenience, and service.  
29
- 30 • Lastly, the Company fully appreciates the Commission’s reluctance in two of  
31 Avista’s prior rate cases to address the prudence of AMI — it was early in Avista’s  
32 implementation process and much was yet to be learned (indeed, Avista  
33 experienced challenges along the way, as should be expected, but made necessary  
34 course corrections). Nearly four years later, the AMI program has sufficiently

<sup>45</sup> The current net present value of Avista’s combined capital and operations and maintenance (O&M) costs is \$~~169.758.7~~M, representing more than a 2025% reduction in total costs compared with the Company’s earlier 2016 estimate of \$215.1M.

<sup>46</sup> Nominal net benefits are the total value of nominal benefits shown at the bottom of Table 4-2 (\$~~496487.5~~ million) of the Report (Exh. JDD-2r (Revised-Clean) at p. 51) minus the total of nominal capital and O&M costs shown at the bottom of Table 3-1 (\$~~156.61.2~~ million + \$~~101.788.2~~ million). (Id. at pgs. 32-33)

1 matured to allow for a determination of prudence and cost-recovery (both of and  
 2 on investment). In order to be transparent, we have provided a comparison of costs  
 3 and benefits between 2016 estimates and current figures, as the Project has  
 4 matured.

5  
 6 **Q. Would you please provide an overview of the implementation of AMI?**

7 A. Yes. In 2016, Avista completed its competitive selection process for advanced  
 8 metering software and hardware systems and announced its selection of the firm Itron as the  
 9 winning bidder. Execution of this contract provided a basis for the Company's request (and  
 10 subsequent approval) for deferred accounting for retired meters. This was followed by  
 11 initiation of work on the meter data management and head end systems described elsewhere.  
 12 Avista continued to refine its plans for comprehensive customer engagement and  
 13 communication and initiated customer outreach in 2017. Our initial Project schedule called  
 14 for a pilot deployment of communications infrastructure, advanced electric meters and natural  
 15 gas communicating modules in 2017, with completion of the Project slated for early 2020. For  
 16 reasons discussed elsewhere in testimony and in the Report (Exh. JDD-2r (Revised-Clean)) at  
 17 p. 2), the full implementation of AMI was delayed by approximately one year.<sup>47</sup>

18 Our meter data management system and head end systems projects have been in  
 19 operation for nearly two years and our meter communications systems have been deployed  
 20 and are functioning as needed as we complete each new phase of meter installation. As of  
 21 September 1, 2020, when the Report was initial filed, the deployment of electric meters was

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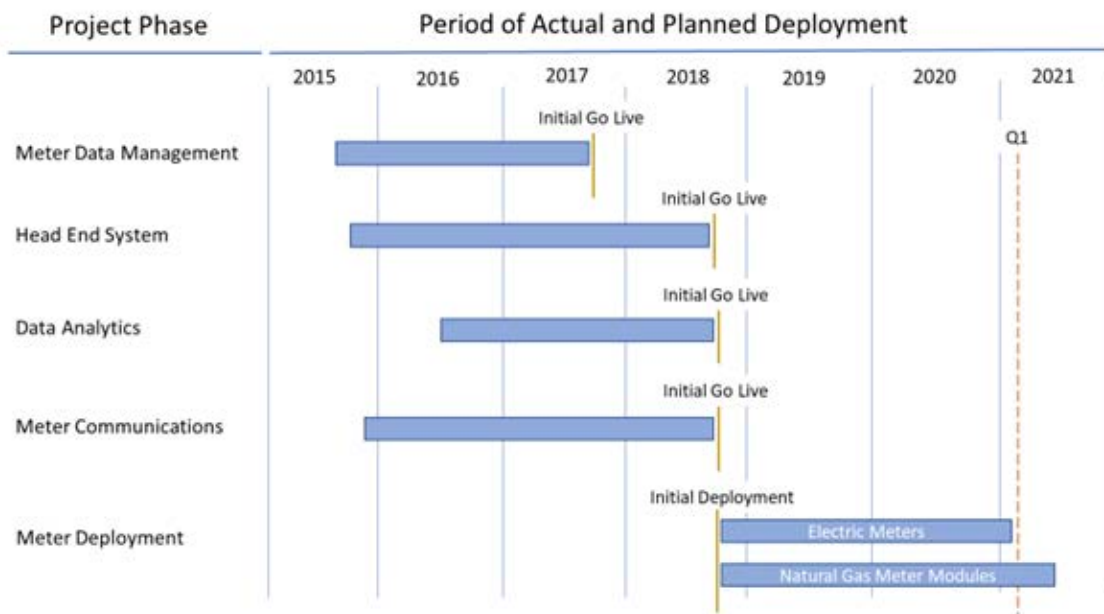
<sup>47</sup> The setback encountered during deployment arose from the need for additional software and hardware releases from Itron based on the product maturity of the RIVA metering platform. Avista understood when it elected to move forward with this system that its new generation capability for grid edge computing might result in such issues. In response to these delays we made the decision to delay the meter deployment phase of the Project and to optimize other activities around this shift in timing. Because this optimization reflected careful, integrated and prudent decisions, the overall cost of the Project still comes in well below the 2016 estimated cost.

1 98% completed and natural gas modules ~~i~~was 95% complete. The remaining 20,000 natural  
 2 gas meter modules ~~will~~ were to be in service by the end of the second quarter of 2021; this  
 3 number has been revised downward by approximately 17,500 as noted in the Preface to the  
 4 revised Report (Exh. JDD-2r (Revised-Clean)). ~~The Company will update this information~~  
 5 ~~during the pendency of this case.~~

6 **Q. Have you illustrated the Project timeline in the Report?**

7 A. Yes. Illustration No. 3, which is a reproduction of Figure 3-2 that appears at  
 8 page 3 of the Report, provides a Project timeline.

9 **Illustration No. 3 - Deployment Of Avista AMI Project Over Time**



19 **Q. Has this Commission provided guidance with respect to AMI?**

20 A. Yes. In its recent Puget Sound Energy (PSE) Order (para. 153),<sup>48</sup> the  
 21 Commission determined that the operational decision to install AMI was prudent, noting that

<sup>48</sup> Washington Utilities and Transportation Commission v. Puget Sound Energy, Dockets UE-190529 et al. (consolidated), Final Order 08, July 8, 2020 (hereinafter “PSE Order”)

1 “moving to a smart meter platform has become the industry standard, and the Company is  
2 appropriately on pace to keep up with this evolving technology.” (Ibid.) As Avista’s Report  
3 demonstrates, the AMI platform has been embraced throughout the industry, as outdated  
4 metering systems are replaced. The operational decision by Avista to install AMI was prudent  
5 and in-line with industry practice; indeed, had it not done so, the fair question to have been  
6 asked is why not? Whether the Company has done so in a prudent and sensible manner is, of  
7 course, always pertinent — and the Report describes the great care taken by Avista over the  
8 last several years in identifying costs and benefits, and in responding to challenges and lessons  
9 learned as it completes this Project.

10 The recently-issued Order in PSE’s general rate case (Dockets UE-190529, et.al.) also  
11 provides some guidance with respect to the Commission’s views on implementation and cost  
12 recovery for AMI.<sup>49</sup> In its Order 08, issued on July 8, 2020, the Commission reviewed PSE’s  
13 request for cost recovery of its ongoing AMI program, slated to be completed in 2023. While  
14 the Commission allowed recovery of investment on AMI, it ordered the continued deferral of  
15 the recovery of the return on investment until the AMI Project is complete (estimated to be  
16 2023). (PSE Order at para. 156). This expressed the Commission’s view that PSE “will not be  
17 able to demonstrate a significant portion of AMI benefits until the system is fully deployed.”  
18 (Ibid.) It went on to observe that “[t]he final prudency determination thus rests on PSE’s  
19 ability to live up to its promises of multiple customer benefits.” (Ibid.)

20 Given the maturity of Avista’s ongoing AMI completion and experience gained since  
21 2015, it has essentially “buttoned-up” the cost-side of the equation (as AMI is fully

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<sup>49</sup> Ibid.



1 implemented in early 2021) and has fine-tuned its “quantified” financial benefits, sufficient  
2 to demonstrate that it will meet the “net benefit” test, even without fully realizing other  
3 benefits yet to be quantified and other “softer” (but important) benefits not easily quantifiable.  
4 Importantly, Avista will continue to maximize benefits for customers over time — perhaps in  
5 ways that cannot yet be anticipated. As such, it is already “maximizing” its benefits of the six  
6 “use cases” identified in the Commission’s PSE Order (See PSE Order at para 157). This is  
7 discussed in more detail in the Report and in Mr. DiLuciano’s testimony.

8 Avista has already identified nearly \$52.6M of benefits associated with these “six use  
9 cases,”<sup>50</sup> and it has plans to maximize the additional value of these use cases, as discussed in  
10 this Report. We too share the Commission’s concerns that the customers receive the maximum  
11 value for AMI — not just the bare minimum necessary to satisfy the “net benefit” test. Avista  
12 has had the advantage of early planning and execution (not to mention experience gained)  
13 since 2015, with the start of the program—and it will continue to build on this experience until  
14 it has maximized the value of its AMI system over time (perhaps in ways not yet anticipated).

15 **Q. What are the overall net benefits that have been quantified so far?**

16 A. The following table (excerpted from page 6 of the Report (Exh. JDD-2)),  
17 summarizes the Project costs and benefits, on both a nominal and net present value (NPV)  
18 basis, revealing net financial benefits inuring to customers of \$~~50~~56.3 million.

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<sup>50</sup> See, pages 4-5 of Report (Exh. JDD-2r (Revised-Clean))

1 **Table 4 - Actual And Forecast Costs And Customer Financial Benefits For Avista's**  
 2 **Advanced Metering Infrastructure Project, Estimated As Deployed in February 2021,**  
 3 **In Nominal (Cash) And Net Present Value (NPV) Basis.**

Nominal	Net Present Value (NPV)
<b>Project Costs</b> <del>\$258.3</del> <u>239.4</u> million <sup>51</sup>	<b>Project Costs</b> <del>\$169</del> <u>158.7</u> million <sup>52</sup>
<b>Customer Financial Benefits</b> <del>\$496.5</del> <u>487.5</u> million <sup>53</sup>	<b>Customer Financial Benefits</b> <del>\$220</del> <u>215.0</u> million <sup>54</sup>
<b>Project <u>Net</u> Financial Benefits</b> <del>\$238.2</del> <u>248.1</u> million <sup>55</sup>	<b>Project <u>Net</u> Financial Benefits</b> <del>\$5</del> <u>60.3</u> million <sup>56</sup>

4 As shown above, whether expressed in nominal or net present value terms, the net  
 5 benefits quantified thus far are substantial—without considering the non-quantifiable benefits  
 6 discussed herein.

7 **Q. And how do net benefits now compare with what was anticipated in 2016?**

8 A. Examining only the quantifiable benefits, we have seen a modest reduction in  
 9 anticipated benefits (\$241.7 million vs. ~~\$220~~215.0 million) as we have fine-tuned our analysis.  
 10 (See Table 1-4 of Report, Exh. JDD-2r (Revised-Clean), at p. 8). Nevertheless, the lower costs  
 11 have more than offset the reduction in benefits, resulting in ~~\$5~~60.3 million of net benefits (an  
 12 increase in the level anticipated in 2016 of \$26.6M).

<sup>51</sup> Total of the actual and forecast lifecycle capital costs of ~~\$156.6~~148.8 million and operating (O&M) costs of ~~\$101.7~~90.5 million on a nominal (cash) basis, as summarized in Table 3-1 of the Report.

<sup>52</sup> Total Net Present Value (NPV) of the nominal actual and forecast lifecycle capital costs of ~~\$122.6~~114.9 million and operating (O&M) costs of ~~\$47.1~~42.0 million, as summarized in Tables 1-2 and 1-3 of the Report.

<sup>53</sup> Total actual and forecast lifecycle customer financial benefits of ~~\$496~~487.5 million on a nominal (cash) basis, as summarized in Table 4-2 of the Report.

<sup>54</sup> Total NNPV) of the nominal actual and forecast lifecycle customer financial benefits of ~~\$220~~215.0 million, as summarized in Table 1-4 of the Report.

<sup>55</sup> Total net Project benefits on a nominal (cash) basis (nominal customer financial benefits - nominal Project costs).

<sup>56</sup> NPV of total net Project benefits (NPV customer financial benefits - NPV Project costs).

1 **Q. How does the level of capital and O&M costs compare with the earlier**  
 2 **projections in 2016?**

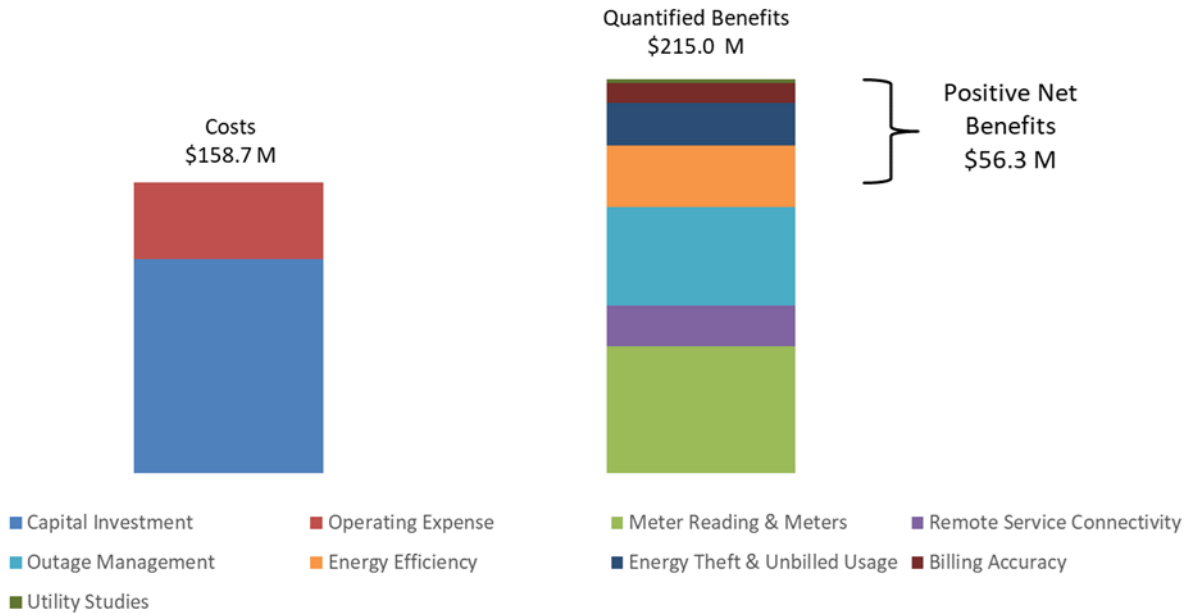
3 A. The current net present value of our combined capital and operations and  
 4 maintenance costs is \$169158.7 million, representing more than a 250% reduction in total cost  
 5 compared with our 2016 estimate of \$215.1 million.

6 **Q. Have you illustrated the level of net benefits currently anticipated in a**  
 7 **“waterfall” chart?**

8 A. The illustration below (Figure 7-1 from the Report) is excerpted from page 10  
 9 of the Report (Exh JDD-2r (Revised-Clean)).

10 **Revised Illustration No. 4**<sup>57</sup>

Estimated (NPV) Lifecycle Costs and Benefits for Avista's Washington  
 Advanced Metering Infrastructure Project, February 2021



11

<sup>57</sup> Due to its formatting as an image, Revised Illustration No. 4 has not been provided in legislative format, but in its updated format only. Please see Exh. JDD-1T, page 26 for the original Illustration No. 4.

1 As noted above, in our 2016 business case we estimated net financial benefits of \$26.6  
2 million, compared with our current estimate of ~~\$50.38.1~~ million. We also completed a  
3 sensitivity analysis on currently estimated financial benefits, as shown in Figure 4-1 of the  
4 Report, and as discussed by Mr. DiLuciano. Even if Avista were to only achieve the extreme  
5 lower end of the range in variability, which is now highly unlikely, the project would still  
6 produce positive net benefits exceeding \$33-39 million, not including any new financial  
7 benefits, such as those described for demand response through variable peak pricing and time  
8 of use rates. Though we believe the prudence of our investment in advanced metering should  
9 be judged on the merits of all customer benefits provided by the system (both quantified and  
10 unquantified benefits), our current case clearly demonstrates the cost-effective value delivered  
11 for our customers based on a conservative showing of existing quantifiable financial net  
12 benefits alone.

13 **Q. Are there other non-quantifiable benefits as well?**

14 A. Yes. The primary benefits discussed in Avista's advanced metering project are  
15 those quantified for inclusion in the financial cost-benefit analysis performed for the business  
16 case. Additional benefits, which have real value to our customers, such as safety, power  
17 quality, convenience, and service, can be more difficult to assign a financial value, but they  
18 do need to be included in the consideration of the prudence of our investment. In our 2016  
19 advanced metering business case we briefly noted several areas of customer benefits that were  
20 not financially quantified. With our initial experience operating the system, we have identified  
21 several additional customer benefits that are being delivered today and that will be offered  
22 over the life of the project. These new areas of benefit and their importance to customers are  
23 described in the Report.

1 **Q. Do you have any concluding remarks regarding AMI?**

2 A. Yes. Avista appreciates the Commission's acknowledgement of our leadership  
3 role in the deployment of smart grid technologies, including advanced metering. We were also  
4 mindful of your admonition that we continue planning and carefully evaluating the costs and  
5 benefits of advanced metering for our customers. Company testimony and the Report  
6 demonstrate the quality of analysis and planning developed to support AMI. Avista's  
7 Washington advanced metering project meets the Commission's interests of deploying new  
8 technology to improve the level and quality of services we provide our customers, and that  
9 such investment is cost effective, prudent, and demonstrated to be used and useful as deployed.

10 **Q. Does this conclude your direct testimony?**

11 A. Yes.