Avista Utilities

2015 Energy Efficiency Evaluation, Measurement and Verification Annual Plan

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I. Background

The Company's 2015 Energy Efficiency Evaluation Measurement and Verification (EM&V) Annual Plan, in combination with the Avista EM&V Framework, is intended to identify the evaluation, measurement and verification activities planned to be performed in 2015 in order to adequately inform and assess energy efficiency programs provided by Avista for its customers in Washington and Idaho. This evaluation effort is not only to verify savings estimates of the 2014 program year, but is to be used to enhance program design and improve the marketing and delivery of future programs. This document also provides the projected 2015 EM&V budget.

II. Overview

Avista's 2015 EM&V Annual Plan identifies evaluation activities intended to be performed during 2015 on the 2014 energy efficiency portfolio. For Washington, the evaluation of 2014 acquisition will be consolidated with results from the 2015 evaluation to satisfy biennial reporting requirements associated with Washington's Energy Independence Act (EIA), also know as I-937. The scope of this Plan is consistent with prior evaluation plans as presented to Avista's Advisory Group. A comprehensive EM&V overview and definitions are included in Avista's EM&V Framework, a companion document to this Plan.

A key consideration integrated into this Plan is the role of the independent third-party evaluator that will perform the majority of evaluation planning, tasks, analysis, and external reporting as coordinated by Avista DSM Staff. The selection of this contractor is in process as of the publication date of this Plan.

Key aspects of this Plan include:

- The Company continues to pursue a portfolio approach for Impact Analysis, insuring a comprehensive annual review of all programs, to the degree necessary, based on the

magnitude of savings and uncertainty of the related unit energy savings (UES) values and magnitude of claimed energy efficiency acquisition relative to the portfolio.

- Inherent in the impact analysis for 2014, a locked UES list indentifying a significant number of UES values is available to leverage through verification rather than fundamental impact analysis.
- Portfolio impact evaluations will be conducted for all electric programs in Washington and Idaho and the natural gas program in Washington. For programs with a majority of savings or particular aspects of interest, such as a high level of uncertainty, impact evaluations will consist of detailed impact evaluations using protocols from the Uniform Methods Project, International Performance Measurement and Verification Protocol (IPMVP) and other industry-standard techniques for determining program-level impacts. Billing analyses will be incorporated as appropriate.
- Electric energy efficiency acquisition achieved during 2014 will contribute to the biennial savings acquisition for EIA compliance, which will complete its third biennium at the end of 2015.[1]
- A final evaluation of the electric programs deployed during 2014 and 2015 will be initiated prior to the end of 2015 in order to meet the June 1, 2016, filing deadline in Washington.
- The evaluation will provide energy efficiency acquisition results with 90% precision with a 10% confidence interval. Discrete measures may be represented by reduced precision and wider confidence, such as 80% with a 20% confidence interval, but must support the required portfolio criteria of 90%/10%.
- This planning document will not be construed as pre-approval by the Washington or Idaho Commissions.
- Evaluation resources will be identified through the development of the 2014 evaluation work plan in conjunction with the independent, third-party evaluator. Primary segments will include:
    - Residential
        - The impact analysis will consider the portfolio of measures provided to residential customers during the program year. Evaluation effort will be focused on measures that contribute significant portfolio savings and allow consolidation and grouping of similar measures to facilitate the evaluation.
    - Low Income
        - For the impact analysis, billing analysis on the census of measures, including conversions, will be conducted. In addition, a comparison group, possibly consisting of Low Income Home Energy Assistance

[1] Washington Initiative 937 was approved by voters on November 7, 2006. Codified as RCW 19.285 and WAC 480-109, the energy efficiency aspects of this law became effective on January 1, 2010.

Program (LIHEAP) or Low Income Rate Assistance Program (LIRAP) participants, may be incorporated into the analysis if possible.

- Nonresidential
  - Interviews of Avista staff and third-party implementers will be conducted, along with customer surveys, tracking databases, marketing materials and quality assurance documents.

- Consideration will be made recognizing most of Avista's current portfolio of electric energy efficiency offerings has been in place since 1995 and natural gas programs available since 2001.
- A Process Evaluation report will be delivered as part of the 2015 Demand Side Management Annual Report which addresses program considerations for that program year.

III. External EM&V Budget for Evaluations

For 2015, the total budget for external evaluation is estimated to be $610,000. The following table identifies evaluation activities and allocations that are anticipated for 2015. The Washington expenses include evaluation activities for both electric and natural gas fuel types while Idaho includes expenses associated with electric only.

Individual Evaluations	Evaluation Type	Contractor	Budget (System)	WA expense	ID expense
2014 Electric and Natural Gas Portfolio	Impact	TBD	$560,000	$426,500	$133,500
Electric and Natural Gas DSM Operations (or components of)[2]	Process	TBD	50,000	38,000	12,000
Total Budget for Individual Evaluations			**$610,000**	**$464,500**	**$145,500**

The budget above does not include the costs associated with individual internal evaluation activities, as these costs are captured in the overall EM&V budget found in the table below. This includes both internal labor and physical equipment shared in common with other evaluations or Avista's DSM operations.

[2] Process evaluation efforts may be directed to a further investigate past process evaluation findings rather than perform a new portfolio evaluation.

IV. Overall 2015 EM&V Budget

The table below captures the individual evaluations specifically identified in the previous table in aggregate and augments them with the associated expenses necessary to manage EM&V activities, perform internal EM&V evaluations, acquire physical EM&V equipment and actively participate in and fund the activities of the Regional Technical Forum (RTF).

Activity	Budget (WA/ID system)	Internal budget	External budget	WA expense	ID expense
Individual evaluations previously specified	$610,000		$610,000	$464,500	$145,500
1.0 FTE (loaded) EM&V engineer	138,000	$138,000		96,600	41,400
Regional Technical Forum dues	85,000		85,000	59,500	25,500
Total	**$833,000**	**$138,000**	**$695,000**	**$620,600**	**$212,400**
Expected total DSM budget	**$20,267,049**			**$14,186,934**	**$6,080,115**
EM&V as a % of total DSM budget[3]	**4.11%**			**4.37%**	**3.49%**

V. EM&V External Evaluation Contract

In September 2014 Avista published a Request for Proposal for the evaluation, measurement, and verification activities associated with the demand side management portfolio as executed by Avista during the 2014 and 2015 program years. This independent third-party evaluator that will perform the majority of evaluation planning, tasks, analysis, and external reporting as coordinated by Avista DSM Staff. The selection of this contractor is in process as of the publication date of this Plan.

VI. Internal EM&V Activities

Within its DSM portfolio, Avista incorporates EM&V activities to validate and report verified energy savings related to its energy efficiency measures and programs. EM&V protocols serve to represent comprehensive analyses and assessments necessary to supply useful information to

[3] While EM&V expenditures will be directly assigned where appropriate, this illustrates the anticipated allocation of estimated EM&V expenditures

management and stakeholders that adequately identifies the acquisition of energy efficiency attributable to Avista's DSM Programs as well as potential process improvements necessary to improve operations both internally and for customers. EM&V includes Impact, Process, and Market analyses, and taken as a whole are analogous with other industry standard terms such as Portfolio Evaluation or Program Evaluation.

A primary responsibility of Avista's EM&V resources is to support the ongoing activities of the third-party EM&V consultants and evaluators performing the various analyses required to substantiate the conservation acquisition, determine market saturation and penetration, and process evaluations. The 2015 EM&V budget provides for third-party EM&V services that provide an evaluation of 2014 program year portfolio, along with consolidating these findings with results obtained for 2015 for reporting requirements associated with the Washington EIA biennium. For Idaho, 2014 savings will be measured, verified, and reported during 2015. These findings are reported in the Demand Side Management Annual Report and include analysis of both program and process impacts for the specific programs reviewed.

To support planning and reporting requirements, several guiding EM&V documents are maintained and published. This includes the Avista EM&V Framework, an annual EM&V Plan, and EM&V contributions within other DSM and Avista corporate publications. Program-specific EM&V plans are created as required to inform and benefit the DSM activities. These documents are reviewed and updated as necessary, serving to improve the processes and protocols for energy efficiency measurement, evaluation, and verification.

The Technical Reference Manual (TRM) will be managed as a principal planning and reporting document relative to individual prescriptive measures, their respective UES values and accompanying assumptions and sources. The TRM will serve as the compilation of UES values linking the planning and reporting phases of DSM activities and will be updated annually as informed by evaluation findings. Initial TRM versions included both prescriptive nonresidential and residential, but the most recent draft includes mostly residential UES. Subsequent to the 2010-2011 biennium, the Washington Commission ordered Avista to use RTF UES when available. However, in consultation with the Advisory Group, it has been demonstrated that Avista has few measures that completely align with the RTF criteria and delivery methods as defined by the RTF analysis. Therefore, if an RTF UES doesn't exist or when a delivery

mechanism differs, Avista's program participation is subject to varying levels of EM&V. Avista continues to work with its Advisory Group in the development and best application of its TRM.

For the 2014-2015 biennium in Washington, Avista incorporated a Locked UES list into its Biennial Conservation Plan that is intended to provide symmetry between the conservation target established by the Conservation Potential Assessment (CPA) and the evaluation of verified savings. The Locked UES list provides the quantified unit energy savings for measures as defined by the RTF at the time of the creation of the CPA. By leveraging this set of RTF UES values, the evaluation of applicable measures can be performed by verification rather than impact analysis and provides savings values relative to the adjusted market baseline established by the RTF for that measure.

EM&V efforts will also be applied to evaluating emerging technologies and applications in consideration of potential inclusion in the Company's energy efficiency portfolio. Avista may spend up to 10 percent of its conservation budget on programs whose savings impact have not yet been measured, if the overall portfolio of conservation passes the Total Resource Cost test as modified by the Northwest Power and Conservation Council (NPCC). These programs may include educational, behavior change, and other types of investigatory projects. Specific activities can include product and application document reviews, development of formal evaluation plans, field studies, data collection, statistical analysis, and solicitation of user feedback.

Avista and its customers benefit from regional activities and resources in the energy efficiency domain. To engage with and contribute to the regional efforts, Avista DSM staff has a Voting Member on the RTF that serves as an advisory committee to the NPCC. The RTF is a primary source of information relating to the standardization of energy savings estimates, delivery methods, and measurement processes for many electric applications in the northwest. This knowledge base provides valuation of energy efficiency metrics and references that are suitable for consideration in Avista's acquisition planning and reporting or can be modified with Avista's specific data as available to refine regional assumptions. Other data and informational sources that are deemed pertinent to Avista's programs as delivered in addition to the RTF include Northwest Energy Efficiency Alliance (NEEA), consultant libraries, ENERGY STAR, Sixth Power Plan, California's Database for Energy Efficient Resources (DEER), Avista-specific

impact analyses and other public sources. The UES values contained in Avista's TRM will be subject to rigorous impact evaluations to be performed by a third-party evaluator, updated annually as appropriate and available to the Advisory Group for review.

Additional regional activities include engagement with other northwest utilities and NEEA in various pilot projects or subcommittee evaluations. Portions of the energy efficiency savings acquired through NEEA's programs within the region are attributable to Avista's portfolio.

Avista's commitment to the critical role of EM&V is supported by the Company's continued focus on the development of best practices for its processes and reporting. Application of the principles of the International Performance Measurement and Verification Protocol serves as the guidelines for measurement and verification plans applied to Avista programs. Additionally, the recent compilation of EM&V protocols released under the U.S. Department of Energy's Uniform Methods Project will be considered and applied where possible to support consistency and credibility of the reported results. The verification of a statistically significant number of projects is often extrapolated to verify and perform impact analysis on complete programs within reasonable standards of rigor and degree of conservatism. This process serves to insure Avista will manage its DSM portfolio in a manner consistent with utility and public interests.

VII. Summary of Individual Evaluations

Provided below is a summary of each of the external evaluation activities anticipated to occur in 2015. All savings estimates, calculations, assumptions and recommendations will be the work product of the independent evaluator in conjunction with the respective portfolio impact, process, or market evaluation component.

2014 Electric and Natural Gas Portfolio Impact Evaluation

The electric and natural gas portfolio impact evaluation will be performed by an independent third party evaluator as selected through a competitive bidding process. Based on the evaluator's work plan, performance data and supporting information may be derived from primary consumption data collected in the field, site audits, phone surveys, billing analysis, and other

methods identified to effectively quantify the energy performance of the energy efficiency measure.

Similar to prior evaluations, billing analyses is to be conducted to identify the electric and natural gas impacts of the Low Income Program based on a census of program participants to estimate savings by state, fuel type, and overall program levels. For this evaluation cycle, savings estimates will be evaluated through a combined approach of billing and engineering analysis, as well as developing net savings estimates by measuring the effects of a comparison group.

If possible, a Low Income comparison group study may be used to evaluate this specific program activity. There are two feasible approaches for selecting this comparison group. One method would be to identify nonparticipants from data on Avista customers that receive energy assistance payments such as LIHEAP or LIRAP, who have not participated in the Low Income Program. A second method would be to consider using future program participants. The best approach will be identified as the timeline and available data are considered.

Additional participant phone surveys may be conducted to provide a better understanding of certain topics, such as primary and secondary heating sources, equipment functionality prior to replacement, customer behaviors and take-back effects, participant non-energy benefits and other building or equipment characteristics.

For nonresidential, site and metering visits on prescriptive and site specific projects will support project verification and gather necessary data to validate energy savings and engineering calculations. Sample sizes for each type of fuel will be based on the combined two-year (2014-15) projected project count. Prior evaluations may inform sampling rates to effectively reduce the sample size in measure categories with less uncertainty, and increase the sampling for those measures with greater variation. Washington natural gas projects deployed in the 2014 program year will also be evaluated.

2014 Portfolio Process Evaluation

To identify program changes and areas of interest, brief interviews will be employed to gather relevant information. Key participants in the interview process will include Avista staff, and as appropriate, third-party implementation staff and trade allies.

The independent third-party evaluator will review communication and participant materials for critical program documents that have new or updated materials, including program tracking databases, marketing materials and trade ally materials. The program materials will be evaluated against industry best practices for their adequacy, clarity, and effectiveness. Where appropriate, feedback will be provided to support the development of new or enhancement of existing program materials.

Participant and nonparticipant surveys will be conducted in 2015 for both residential and nonresidential segments and be used to assess differences in customer experiences, effectiveness of programs and materials available for customers and trade allies. Participant and nonparticipant surveys will focus on the decisions, attitudes, barriers, and behaviors regarding Avista's programs and efficient equipment/measure installations as well as supplement past spillover research.

Smart Thermostat Impact Analysis

Beginning in September 2014, Avista began a Smart Thermostat measure to incentivize web-enabled devices in residential applications. Based on the intelligence, communication, and control options associated with these devices, significant advantages are expected that improve the energy efficiency associated with residential heating, ventilation, and air conditioning (HVAC) systems.

The measure will be available to residential customers in Washington and Idaho with primary heating fuel options of electric and natural gas in Washington and electric-only in Idaho. Energy savings are expected to be the result of passive behavior changes and optimized control strategies of the HVAC equipment.

A sunset date for this program is expected to be approximately one year after launch in order to evaluate energy savings. Recognizing the energy efficiency acquisition for Smart Thermostats has yet to be reliably quantified, Avista will work with the independent third-party evaluation staff to identify a methodology that will attempt to identify the energy savings from each of the four variants of this program that are electric and natural gas heating fuels, contractor installed devices and devices installed by the homeowner. Avista will also seek to develop information regarding the installation rate and gather additional relevant information regarding the heating

system such as fuel, efficiency, and size, along with the pre-existing thermostat, home size, basic shell and occupant demographics on a randomly selected sample of participating customers to the extent feasible to support the analysis activities of the third-party evaluator.

Residential Behavior Analysis

During the 2014 program year, Avista continues to offer a residential behavior energy efficiency measure in Washington and Idaho through Home Energy Reports (HER) provided by Opower. Since its inception in 2013, the verification of energy savings has been a significant component of the evaluation process.

The current evaluation model is based on a randomized control trial and the independent third-party evaluator will be expected to continue to report energy efficiency acquisition consistent with the prior models. Group independence and equivalency testing, determination of residual energy savings, uplift analysis, and other components of a comprehensive evaluation will be performed by the evaluator.

Pilot Measures and Programs

The independent third-party evaluator will be expected to review and evaluate the energy efficiency results, including measure costs and benefits, as they relate to program management decisions in consideration of expanding the pilot measures to the full portfolio.