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## BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE COMMISSION'S )  
INQUIRY INTO THE COST-EFFECTIVENESS ) CASE NO. GNR-E-12-01  
AND FUNDING OF LOW INCOME )  
WEATHERIZATION AND ENERGY ) STAFF REPORT  
CONSERVATION PROGRAMS FOR )  
ELECTRIC UTILITIES )

The Staff of the Idaho Public Utilities Commission submits this report on the low-income weatherization and energy conservation education programs offered by electric utilities.

### PROCEDURAL BACKGROUND

Idaho Power Company, Avista Utilities, and Rocky Mountain Power Company offer low-income weatherization programs and energy conservation education programs. In recent rate cases, questions surfaced about how to best determine each utility's appropriate level of program funding. In particular, concerns arose about how such programs are to be accurately assessed for cost-effectiveness and overall customer need. The Commission issued an Order in each case instructing the companies to participate in public workshops to resolve these issues. See Order No. 32371, Case No. AVU-E/G-11-01; Order No. 32426, Case No. IPC-E-11-08; Order No. 32432, Case No. PAC-E-11-12; and Order No. 32440, Case No. PAC-E-11-13.

On February 15, 2012, the Commission issued a notice that initiated this generic case and scheduled a March 19-20, 2012 public workshop at which the utilities, interested persons, and Commission Staff were to "explore in greater detail issues related to the funding,

implementation, and evaluation of utility low-income weatherization and energy conservation education programs.” After the workshop occurred, Commission Staff was to prepare and submit a report discussing Staff’s findings and recommendations. The Commission said it would then schedule further proceedings and hearings as needed. *See* Notice of Public Workshop.

The workshop occurred as scheduled. Staff now submits its Report discussing its findings and recommendations.

## **STAFF REPORT**

### **A. Procedural Recommendations.**

Staff recommends that the Commission process this case under modified procedure. After the workshop, Staff provided participants with a draft of Staff’s report and asked them to provide feedback before Staff finalized and filed it. Now that Staff has obtained that feedback and filed the final report, Staff recommends that the Commission set deadlines for interested parties to file written comments on the report, that the Staff’s reply comments be due fourteen days later, and that any intervenor-funding requests be filed fourteen days after Staff’s reply.<sup>1</sup>

### **B. Substantive Findings and Recommendations.**

Staff’s substantive findings and recommendations are attached as Attachment A.  
Respectfully submitted this 23<sup>rd</sup> day of October 2012.



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<sup>1</sup> In Order 32440, Case No. PAC-E-11-13, the Commission stated: “The Commission notes that it will entertain a timely petition for intervenor funding filed by CAPAI following the conclusion of the public workshops ordered in this case. Because the Commission views this case as a precursor to the generic investigation and public workshops ordered in this case, PAC-E-11-13, and the Company’s last general rate case, PAC-E-11-12, CAPAI may submit a request that includes any fees and/or costs incurred by the organization associated with this case.”

**Idaho Public Utilities Commission Staff  
Report on Low Income Weatherization and  
Energy Conservation Education Programs  
Case No. GNR-E-12-01**

**Executive Summary**

The last year was challenging for Idaho's low income weatherization programs. The Community Action Partnership Association of Idaho (CAPAI) asked the Commission to approve funding increases for low income weatherization programs in Idaho Power Company's and Rocky Mountain Power's general rate cases. *See* IPC-E-11-08 and PAC-E-11-12. In addition, Rocky Mountain Power asked the Commission to let it stop evaluating its low income program. *See* PAC-E-11-13. Commission Staff opposed all three requests due to cost-effectiveness and funding-methodology concerns, and recommended that the Commission schedule public workshops to resolve these issues. In AVU-E-11-01/AVU-G-11-01, the Commission approved a funding increase for Avista Utilities' Low Income Energy Conservation Education Program.<sup>1</sup>

The Commission ultimately directed interested stakeholders to meet at a workshop to discuss the cost-effectiveness and funding-methodology issues. On March 19-20, 2012, Staff, utilities, CAPAI, and Community Action Partnership (CAP) agencies participated in the workshop. This report attaches the workshop agenda as Appendix 1; program-comparison matrices updated from the workshop as Appendix 2; a list of possible non-energy benefits as Appendix 3; and a workshop-participant list as Appendix 4. It also presents Staff's findings and recommendations arising from the workshop and subsequent discussions with stakeholders.

Staff is primarily concerned about the cost-effectiveness of utility-funded low income weatherization programs in Idaho. Two of the three utilities' programs are not cost-effective without non-energy benefits, and the third program's cost-effectiveness is in doubt. Despite these concerns, Staff is reluctant to recommend cutting established programs that help low income customers control their energy bills. This is especially true because the Low Income Home Energy Assistance Program (LIHEAP) recipient list shows that the need for these programs far outpaces their funding.<sup>2</sup>

Of the three weatherization programs, only Idaho Power's program claims to be cost-effective without non-energy benefits. But Staff doubts Idaho Power's program is as cost-effective as it appears; Idaho Power's 1.96 cost-effectiveness ratio for the Total Resource Cost (TRC) test in 2011 relies on what Staff believes are overstated energy savings estimates from a U.S. Department of Energy (DOE)-approved modeling software, the EA4 and its recent update, the EA5.

Impact evaluations of Rocky Mountain Power and Avista's programs found that the EA4 and EA5 software significantly over-estimated energy savings. Rocky Mountain Power's impact evaluation found that only 65% of the EA4's expected savings were actually achieved. Avista's evaluation found that only 27% of the expected savings were achieved. Idaho Power is in the

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<sup>1</sup> The Commission approved an increase from \$40,000 to \$50,000 effective October 1, 2011.

<sup>2</sup> LIHEAP is a federally-funded bill payment assistance program for low-income households.

process of conducting its first low income weatherization impact evaluation and expects to publish the results in spring 2013.

Rocky Mountain Power's reported cost-effectiveness for 2007-2009 (TRC is 0.79) is likely the most accurate valuation of a reasonably well-run low income program among the three utilities. Staff agrees, however, with some of CAPAI expert, Roger Colton's, analysis showing that the energy savings produced by Rocky Mountain's program are probably understated due to inadequate billing analysis controls between the participant and non-participant (control) group during the impact evaluation. A more accurate assessment of energy savings would improve the cost-effectiveness of Rocky Mountain Power's program, and might demonstrate that it is cost-effective.

Avista's electric low income program is the most troubling of the three low income weatherization programs. Cost-effectiveness for the electric low income program fell from 0.66 TRC in 2010 to 0.43 in 2011.<sup>3</sup> This is problematic for many reasons, but primarily because the 0.66 TRC was based on energy savings previously verified through an impact evaluation.<sup>4</sup> It is unclear how the cost-effectiveness could have dropped so precipitously when verified energy savings were used in both years. Based on the Cadmus process report of Avista's low income weatherization program, Staff believes that improving the CAP agency and Avista's program implementation could significantly increase program cost-effectiveness. This report specifies several improvements, including the prioritization of utility funding constraints over more generous federal guidelines and reducing the percentage of each project funded by Avista from 100% to 85%, that could increase cost-effectiveness and justify continued Staff support for Avista's electric low income program.

Avista's natural gas low income program's TRC increased from 0.18 to 0.63 between 2010 and 2011, but the program still struggled with cost-effectiveness. In late May 2012, Avista received an update to its natural gas Integrated Resource Plan (IRP) in which the supply side costs avoided by demand-side management (DSM) programs fell by 50% due to low natural gas prices. The extremely large decrease in avoided costs proved insurmountable to building a cost-effective gas portfolio. Staff's analysis found that applying the new avoided cost rate to 2011 cost-effectiveness calculations resulted in a TRC of 0.43 and a Utility Cost Test (UCT) of 0.29 for Avista's low income weatherization program. Even with improved implementation and the cost-effectiveness calculation recommendations included in this report, it is extremely unlikely that the low income gas program would pass the TRC or UCT. In Order No. 32650, the Commission approved Avista's request to suspend its entire gas DSM portfolio, including its gas low income program.<sup>5</sup>

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<sup>3</sup>Savings estimates from the 2010 Cadmus impact evaluation were applied to 2011 program activities.

<sup>4</sup> Large drops in cost-effectiveness can occur after a program's first impact evaluation.

<sup>5</sup> Order No. 32650 was issued in Case No. AVU-G-12-03/AVU-G-12-06 on September 25, 2012. The Company will discontinue its natural gas low income weatherization program on December 31, 2012, when its current weatherization contract with CAP expires.

Besides improving implementation, Staff believes all three utilities could modify their low income cost-effectiveness calculations to improve accuracy and more completely assess program cost-effectiveness. Staff's recommended modifications will decrease some programs' reported cost-effectiveness and likely increase other programs' reported cost-effectiveness. A complete list of Staff's recommendations is included below.

One of the main issues discussed during the recent rate cases and the workshop was determining a funding methodology to assess the level of low income weatherization funding. Staff recommends that a combination of factors be considered for funding decisions. Most importantly, Staff believes that in order for a utility's funding to be increased, it must be shown that the program is cost-effective. No program should receive a funding increase if it is not cost-effective according to the criteria outlined in this report. After a program is determined to be cost-effective, at least five factors should be examined to determine if a funding increase is appropriate.

1. Funding could be increased if the list of not-previously weatherized homes waiting for weatherization (as indicated by the LIHEAP data) has increased significantly since the last review.
2. Funding could be increased if a utility's program provides significantly less funding on a per-capita basis than the cost-effective program of another utility operating within the state of Idaho with comparable poverty levels in its service territory.
3. Funding could be increased if the utility is awarded a significant base rate increase. Rate increases impact low income customers more adversely than other customers, therefore it could be appropriate to provide increased funding for low income weatherization when rates increase.
4. Funding could be increased if the utility does not have sufficient funds to acquire the annually achievable low income energy savings potential as indicated by the utility's most recent Conservation Potential Assessment (CPA).<sup>6</sup> This criterion is similar to how utilities fund other DSM programs.
5. Funding should not be increased if a utility's CAP agencies have been unable to spend all of the available utility funding in the previous year.

While these criteria are not a rigid funding mechanism, they do respond to the Commission's order to incorporate multiple factors into a funding methodology, provide parties with a more clear understanding of how Staff will analyze funding levels, and provide discretion to establish funding levels that are specific to each utility. This methodology will also limit the possibility of unintended consequences that a strict metric might impose, such as reduced funding amounts if the LIHEAP list of not-previously weatherized homes were to decline. Incorporating the findings of each utility's CPA will also more closely align low income

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<sup>6</sup> Conservation Potential Assessments determine the amount of technical, economical, and achievable DSM resources available in a utility's service territory.

weatherization funding levels with the method used to determine funding levels for other DSM programs.

Staff believes that all three electric low income weatherization programs will be either cost-effective or nearly cost-effective after the implementation and cost-effectiveness calculation adjustments recommended in this report are adopted. Consequently, Staff recommends that funding levels for these programs remain at current levels until the uncertainties surrounding cost-effectiveness are resolved.

Staff recommends that a possible funding increase for Idaho Power be reviewed after the results of its impact evaluation are published in spring 2013. This will allow parties to review the cost-effectiveness of Idaho Power's program when those ratios include verified energy savings, rather than the estimates generated by the EA5 software.

Staff recommends that a possible funding increase for Rocky Mountain Power be reviewed after its new data collection system is fully implemented and after the 2012 program data has been analyzed for cost-effectiveness under the recommendations in this report. Staff anticipates that both of these requirements will be met when Rocky Mountain Power publishes its annual DSM report in spring 2013.

Based on the lower cost-effectiveness ratios and more extensive implementation recommendations, Staff recommends that a funding review for Avista's low income weatherization program be delayed until at least 2014. Staff believes that the extra time will allow Avista and its CAP agency to implement and review program changes for impacts on cost-effectiveness, and make sure that those improvements persist.

Staff believes that Low Income Energy Conservation Education (Con-Ed) Programs are separate, stand-alone programs from weatherization. Although the Con-Ed and weatherization programs are complementary, the cost of and energy savings produced by the Con-Ed Programs should not be included in cost-effectiveness calculations for low income weatherization programs. Moreover, since Con-Ed programs are similar to other energy education programs in that they frequently do not create measurable energy savings, Staff believes that standard cost-effectiveness tests are not meaningful and therefore should not be applied when evaluating Con-Ed programs.

The Con-Ed programs are still developing, so Staff will carefully review the findings of CAPAI's evaluation of the Con-Ed program funded by Rocky Mountain Power, which will be published in June 2013. Staff recommends continuing the current funding levels for Idaho Power and Avista's Con-Ed programs. The two CAPs receiving funding from Rocky Mountain Power have found it difficult to spend the \$50,000 currently authorized, so Staff recommends that funding should be reduced to \$25,000. Lastly, Staff believes that the Commission intended that each utility, including Rocky Mountain Power, fund its Con-Ed program annually.

## **Staff Recommendations**

**Recommendation 1:** Staff recommends that Idaho Power use its third-party impact evaluation results to inform the savings estimates from the EA5 modeling software. After this adjustment, all three companies will be using verified energy savings estimates in their cost-effectiveness calculations. Many, but not all, impact evaluations find that actual savings are lower than the previous estimates. If this is the case for the energy saving produced by Idaho Power's program, this adjustment will decrease the cost-effectiveness of Idaho Power's program.

**Recommendation 2:** Staff agrees that customers who qualify for LIHEAP bill assistance and who are then added to the CAP agency weatherization lists are extremely unlikely to have sufficient funds to weatherize their homes. Staff further agrees that landlords have little incentive to pay for energy efficiency measures when they are not responsible for paying the energy bill. Therefore, Staff recommends that utilities claim 100% Net-To-Gross for this program. This adjustment will benefit the cost-effectiveness of Idaho Power's program.

**Recommendation 3:** Staff recommends that utilities claim 100% of the energy savings produced by each low income weatherization project for which they provide funding. This adjustment will increase the cost-effectiveness of Idaho Power's program.

**Recommendation 4:** Staff recommends that Idaho Power develop a method to include indirect administrative overhead costs in its low income program cost-effectiveness in a manner that approximates how these expenses are assigned to supply-side resources. This adjustment may decrease the cost-effectiveness of Idaho Power's program.

**Recommendation 5:** Requiring low income programs, which often have smaller budgets and energy savings relative to other DSM programs, to incorporate the full cost of an evaluation in a single year could lead to extremely lean evaluation budgets, and possibly lower quality evaluations. Staff recommends that utilities have the option to incorporate program evaluation costs at the jurisdictional portfolio level rather than the program level. Alternatively, Staff recommends that utilities have the option to amortize evaluation costs over the two to three years between evaluations for program level cost-effectiveness calculations.

**Recommendation 6:** Staff does not oppose Rocky Mountain Power and Avista's use of a 10% conservation preference adder in their low income DSM cost-effectiveness calculations. Use of the adder is widely accepted by state utility regulatory commissions on a regional basis and its use is included in the Northwest Power Act. Staff would not oppose Idaho Power's use of this adder in its low income cost-effectiveness calculations. Including a 10% conservation preference adder would increase the cost-effectiveness of Idaho Power's low income weatherization program.

Recommendation 7: Staff recommends that payment-related non-energy benefits, such as reductions in utilities' arrearages and bad debt, as well as collection, disconnection, and reconnection expenses that may accrue when low income customers' bills are reduced through weatherization, be quantified and included in cost-effectiveness analyses when possible.

Staff recommends excluding economic non-energy benefits and non-energy benefits that accrue to program participants because they have not yet been rigorously quantified. These include increased property values, extended lives of weatherized dwellings, health impacts, takeback, and increased comfort.

Including quantifiable payment-related non-energy benefits will increase the cost-effectiveness of low income programs over what they otherwise would have been. However, excluding the economic non-energy benefits already included in Rocky Mountain Power's Cadmus evaluation will decrease that program's cost-effectiveness.

Recommendation 8: Staff recommends that Avista continue quantifying utility-funded health, safety, and repair measures as a dollar of non-energy benefits for each dollar of cost. Staff recommends that Idaho Power and Rocky Mountain Power apply this methodology to their cost-effectiveness calculations. This adjustment will increase Idaho Power and Rocky Mountain Power's cost-effectiveness.

Recommendation 9: Staff recommends that the utilities have the option to claim one dollar of non-energy benefits for each dollar of federal funds invested in health, safety, and repair measures. Staff recommends that this adjustment remain optional since utilities may have difficulty collecting accurate data on federally funded measures and because cost-effectiveness manuals provide discretion on whether federal funds should be included as a cost in the TRC. Staff's recommendation is consistent with the attribution of federal funds in other DSM programs, TRC methodology, and treatment of energy savings. If adopted, this adjustment is likely to increase all three programs' cost-effectiveness, although the exact impact is unknown because the utilities have not previously tracked the amount of federal funds spent on health, safety, and repair measures in utility-funded low income weatherized homes.

Recommendation 10: Staff supports Avista's proposal to use and Idaho Power's current use of a modified discount rate for participant benefits. However, the only type of participant benefits Staff has supported for low income weatherization programs are health, safety, and repair measures that, using Staff's recommended method, are already valued on a NPV basis. Therefore, applying a modified discount rate to these benefits would have no effect on cost-effectiveness.

Recommendation 11: Staff does not recommend constructing a specific cost-effectiveness test for low income programs.



Recommendation 12: Staff recommends that the utilities incorporate additional evaluation methods to inform or complement billing analyses for low income programs whenever possible. If non-participants are used as the control group in a billing analysis, Staff recommends rigorous controls between the two groups, which may include but not necessarily be limited to, previously weatherized homes, service disconnections, economic decline and rate increases, and households prioritized for weatherization, including emergencies. Incorporating these controls and/or other evaluation and billing analysis methods may increase all three programs' cost-effectiveness. Staff also recommends that utilities vary the independent contractors hired to evaluate these programs.

Recommendation 13: Staff believes that Idaho Power should continue to comply with Order No. 29505 which directs the Company to carry over unspent low income weatherization funding from base rates into the following year.<sup>7</sup> Staff also recommends that Avista and Rocky Mountain Power continue to use any unspent low income funds for other DSM programs, consistent with current practice for all programs funded through DSM tariff riders.

Recommendation 14: Staff recommends that Rocky Mountain Power continue the pending and future upgrades to its low income weatherization data management system. Staff also recommends that Avista and Rocky Mountain Power consider adopting Idaho Power's scalable approach to paying for measures to allow for more strategic and cost-effective investments, if Idaho Power's impact evaluation demonstrates that this technique was effective.

Recommendation 15: Staff recommends that Avista pay no more than 85% of the cost per project and up to 100% of the cost per measure. This adjustment will increase the cost-effectiveness of Avista's program and facilitate cost-effectiveness comparisons between the three utilities.

Recommendation 16: Staff recommends that no program should receive a funding increase if it is not cost-effective according to the criteria outlined in this report. After a program is determined to be cost-effective, at least five factors should be analyzed to determine if a funding increase is appropriate.

1. Funding could be increased if the list of not-previously weatherized homes waiting for weatherization (as indicated by the LIHEAP data) has increased significantly since the last review.
2. Funding could be increased if a utility's program provides significantly less funding on a per-capita basis than the cost-effective program of another utility operating within the state of Idaho with comparable poverty levels in its service territory.

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<sup>7</sup> Page 32 of Order No. 29505, Case No. IPC-E-03-13, states "Any unpaid funds shall carry over and be available in the next year."

3. Funding could be increased if the utility is awarded a significant base rate increase. Rate increases impact low income customers more adversely than other customers, therefore it could be appropriate to provide increased funding for low income weatherization when rates increase.
4. Funding could be increased if the utility does not have sufficient funds to acquire the annually achievable low income energy savings potential as indicated by the utility's most recent Conservation Potential Assessment (CPA). This criterion is similar to how utilities fund other DSM programs.
5. Funding should not be increased if a utility's CAP agencies have been unable to spend all of the available utility funding in the previous year.

Recommendation 17: Staff recommends continued funding for Idaho Power, Avista, and Rocky Mountain Power's low income weatherization programs at current levels. Staff believes that funding increases requests for Idaho Power and Rocky Mountain Power could be considered after both companies publish their annual DSM reports in spring 2013. Staff recommends that a funding increase request for Avista be delayed until at least spring 2014 to allow time to implement the more extensive program modifications and determine if those modifications succeed and persist in improving cost-effectiveness.

Recommendation 18: Staff recommends that utilities' annual DSM reports separately address their Low Income Energy Conservation Education Programs. At a minimum, Staff expects each report to describe program design, identify target audience(s), gauge the program's success in meeting its goals, indicate how utility funding was used, and describe how the program benefits the utility's customers. As with other education programs in which energy savings are often very difficult to determine, the Con-Ed programs should not be subjected to standard cost-effectiveness tests like the TRC and UCT. Staff recommends maintaining the current annual Con-Ed program funding level for Avista and Idaho Power. Staff recommends adjusting Rocky Mountain Power's funding to \$25,000 with the clear understanding that this amount should be funded annually.

### **Low Income Weatherization Programs Background and Program Summary**

The Commission has long-supported utility-funded low income weatherization programs. These programs, however, have characteristics that make program cost-effectiveness, oversight, and evaluation more difficult than with other utility-funded energy efficiency programs. Determining program cost-effectiveness is particularly challenging.

Low income weatherization programs primarily differ from other utility DSM programs in that utilities contract with CAPs to deliver weatherization services to low income customers at no direct cost to participants. The CAPs also deliver weatherization services through the

federally-funded Weatherization Assistance Program (WAP) under a contract administered by the Idaho Department of Health and Welfare. With one exception,<sup>8</sup> the CAPs also manage LIHEAP. Low income applicants automatically qualify for WAP if they own or rent single family, multi-family, or manufactured homes that qualify for LIHEAP. Experience in running multiple energy-related benefit programs, the ability to determine income eligibility, and the capacity to deliver services to low income clients makes the community action agencies uniquely qualified to administer utility-funded programs targeting low income customers.

This arrangement has worked well for program delivery, but changing circumstances have raised some concerns. In December 2009, a "Memorandum of Understanding for Prudency Determination of DSM Expenditures" (MOU) was signed by the Commission Staff and Rocky Mountain, Avista, and Idaho Power. The MOU at page 6 addresses utility annual DSM reporting requirements and prudency determination requests:

By performing within these guidelines, assuming there is no evidence of imprudent actions or expenses, the utility can reasonably expect that in the ordinary course of business Staff will support full cost recovery of DSM program expenses.

Page 9 of MOU Attachment No. 1 states Staff's expectations for Cost-Effectiveness Tests, Methods, and Evaluations as follows:

....Staff believes that prudent DSM management requires that cost-effectiveness be analyzed from a wide variety of perspectives, including the ratepayer impact perspective, and that all programs and individual measures should have the goal of cost-effectiveness from the total resource, utility, and participant perspectives. ...If a particular measure or program is pursued in spite of the expectation that it will not, itself, be cost-effective from each of those three perspectives, then the annual DSM report should explain why that measure or program was implemented or continued.

Subsequently, the Commission has stressed the need to evaluate, measure, and verify DSM programs, which has sharpened utilities' focus on cost-effectiveness. In turn, this has increased the perceived risk to utilities of potentially not recovering program expenditures that were not cost-effective using standard cost-effectiveness tests. In 2010, the Commission increased low income weatherization funding for Rocky Mountain Power and Avista, which increased the sums that utilities *may* consider to be at risk. In 2011, CAPAI, acting for the CAP

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<sup>8</sup> In Canyon County, the Western Idaho CAP manages LIHEAP and the Canyon County Organization on Aging (CCOA) administers WAP.

agencies it represents, renewed efforts to increase program funding, in part due to expected large decreases in federal funding.

Rocky Mountain Power, Avista, and Idaho Power have tried to reduce administrative complexity by structuring their low income weatherization programs to dovetail with the DOE's WAP requirements. Using the DOE framework, each state receiving WAP funding must establish eligibility criteria, an approved process for determining energy savings and cost-benefit ratios, and audit procedures to verify compliance with laws, rules, and standards. Although WAP and utility-funded programs share a goal of saving energy, they use different standards to justify expenditures on energy-savings measures. Unfortunately, no consensus exists among utilities, regulatory commissions, or other stakeholders on what factors should be considered, how factors selected should be measured and verified, or how to value factors that are not more easily quantified.

### **Utility Cost-Effectiveness Tests**

When Idaho utilities fund DSM programs, they are buying a resource to meet customer load. The amount of energy saved through a DSM program is equivalent to a generation resource that does not have to be built or energy that does not need to be bought to meet the load requirement for all customers. Utilities fund DSM programs when funding them is cheaper, or more cost-effective, than buying or building the energy resource.

Utilities measure cost-effectiveness using several widely accepted cost-effectiveness tests: the Total Resource Cost Test (TRC), the Utility Cost Test (UCT), the Participant Cost Test (PCT), and the Ratepayer Impact Measure (RIM). A cost-effectiveness ratio of 1.0 or greater means that the program is cost-effective from that perspective.

The TRC and the UCT are the two most important cost-effectiveness tests for a utility-funded DSM program. The TRC compares a DSM program's "benefits and costs from the perspective of all utility customers, participants and non-participants, in the utility service territory."<sup>9</sup> The UCT analyzes the program from the "perspective of the utility implementing the program."<sup>10</sup>

It is important to understand that the TRC and the UCT compare the benefits of a DSM program to the utility's avoided cost, not to the retail rate of energy that customers pay. Therefore, it is possible for a program to be cost-effective from a participating customer's perspective, but not from the perspective of the pool of ratepayers who fund the program as measured by the TRC, or from the utility's perspective as measured by the UCT.

Avoided costs are the costs of resources that the utility did not have to build or buy to meet load because the DSM program produced energy savings. Utilities calculate avoided cost based on a combination of base-load and/or peaking generation costs as well as the

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<sup>9</sup> California Standard Practice Manual: Economic Analysis of Demand-Side Management Programs and Projects.

<sup>10</sup> California Standard Practice Manual: Economic Analysis of Demand-Side Management Programs and Projects.

purchase/sales price for energy.<sup>11</sup> Each DSM program has a unique avoided cost depending on its measures, the savings characteristics throughout the year, and the lifespan of its measures.

Table 1 and Table 2 below outline the benefits and costs included in the TRC and UCT.

Table 1: Total Resource Cost Test <sup>12</sup>	
TRC Benefits	TRC Costs
Energy-related costs avoided by the utility	Program overhead costs
Capacity-related costs avoided by the utility	Program installation costs
Additional resource savings (e.g., gas and water if utility is electric)	Incremental measure costs (paid by customer or utility)
Monetized non-energy benefits	
Applicable tax credits	

Table 2: Utility Cost Test <sup>13</sup>	
UCT Benefits	UCT Costs
Energy-related costs avoided by the utility	Program overhead costs
Capacity related costs avoided by the utility	Utility incentive costs
	Utility installation costs

Much of the confusion surrounding low income program cost-effectiveness comes from the differences between how the CAP agencies calculate cost-effectiveness and how the utilities calculate cost-effectiveness. CAP agencies use an energy modeling software, EA4,<sup>14</sup> to determine the Savings to Investment Ratio (SIR) for the suite of measures considered for installation in a home. The combination of measures must result in a SIR greater than 1.0 for those measures to be installed according to CAP agency requirements. A SIR ratio of 1.0 means that for every dollar invested in measures, a dollar was saved.

But the SIR is based on the customer's retail energy rate and not on a utility's avoided cost. This means that the SIR measures cost-effectiveness from the program participant's perspective, not from the perspective of all ratepayers or the utility. As previously described,

<sup>11</sup> Avoided costs rates for DSM programs are not the same as the avoided costs rate for Public Utility Regulatory Policies Act (PURPA) projects.

<sup>12</sup> California Standard Practice Manual: Economic Analysis of Demand-Side Management Programs and Projects.

<sup>13</sup> California Standard Practice Manual: Economic Analysis of Demand-Side Management Programs and Projects.

<sup>14</sup> The EA4 model was developed for Idaho and has been approved for use by CAP agencies in these programs by the U.S. Department of Energy. An updated version of this model, the EA5, includes the interactive effects between measures (such as lighting and heating) and was adopted for use by the CAP agencies in mid-2012.

using the SIR creates instances where the program appears cost-effective from a participating customer's perspective,<sup>15</sup> but not from the perspective of all ratepayers as measured by the TRC, or from the utility's perspective as measured by the UCT.

In addition, third-party independent evaluations of Avista and Rocky Mountain Power's low income weatherization programs in Idaho have concluded that the EA4 model, which generates the SIR, appears to significantly overstate energy savings. Avista's 2011 billing analysis<sup>16</sup> evaluation found that the energy savings provided to it by its Idaho CAP agency using the EA4 overestimated program savings by 73% during 2010 and 2011.<sup>17</sup> Rocky Mountain Power's billing analysis of its low income weatherization program found 35% less energy savings than the EA4 predicted.

As shown in Tables 3 and 4 below, two of the three utility-funded low income weatherization programs were not cost-effective in 2010 and 2011 under the TRC or UCT. Idaho Power has the only program that appears to be cost-effective. Of the three programs, only Idaho Power's energy savings rely entirely on the results of the EA4 or EA5 audit tool and have not been verified by a third party, independent evaluation. Idaho Power plans to conduct a third-party impact evaluation of its low income program in 2012 and publish the results in its 2012 DSM Annual Report. Staff expects that Idaho Power's pending impact evaluation may substantially reduce this program's reported savings and decrease its cost-effectiveness.

Test <sup>18</sup>	Idaho Power	Avista Electric	Avista Gas	Rocky Mountain
TRC	1.66	0.66	0.18	0.70
UCT	3.27	0.66	0.18	0.70

Test	Idaho Power	Avista Electric	Avista Gas	Rocky Mountain
TRC	1.96	0.43	0.63	0.74 <sup>19</sup>
UCT	2.67	0.38	0.54	0.74

<sup>15</sup> The Participant Cost Test (PCT) examines the cost-effectiveness of a program from the participant's perspective. Since participants in low income weatherization programs receive measures for free, the participant cost-effectiveness test is meaningless. Thus, all three Idaho utilities report "N/A" for the results of their low income PCT.

<sup>16</sup> A billing analysis uses utility meter data to determine the reduction in energy consumption of a project after the installation of energy efficiency measures.

<sup>17</sup> Avista 2010-2011 Multi-Sector Electric Impact Evaluation Report, May 25, 2012, conducted by Cadmus.

<sup>18</sup> A TRC or UCT ratio over 1.0 means that the program is cost-effective from that perspective.

<sup>19</sup> RMP's TRC of 0.74 does not include the costs of responding to CAPAI's production requests in either Case No. PAC-E-12-11 or Case No. PAC-E-12-13, but it does include the cost of responding to Staff's production requests and all other regulatory costs associated with those cases. Evaluation costs are also excluded from the 0.74 because they are captured at the portfolio level.

The cost-effectiveness of Avista's low income electric program concerns Staff. The program's TRC declined from 0.66 to 0.43 between 2010 and 2011. Avista's independent evaluator, Cadmus, published a low income process evaluation<sup>20</sup> of this program in 2010 and an impact evaluation in 2012<sup>21</sup> that describes several opportunities for improvement that could significantly increase cost-effectiveness.

First, Cadmus found that "about 12 percent of participants [use] non-electric or gas sources as their primary means of heating, [so] Avista's savings estimates may not be accurate if assuming electric or gas heating systems in its savings calculations. This especially applies to shell measure savings calculations." Funding measures that will generate neither natural gas nor electric savings is clearly detrimental to cost-effectiveness. Since 99%<sup>22</sup> of Avista's 2011 low income energy savings in Idaho came from shell measures, correcting this could substantially improve cost-effectiveness.

Second, Cadmus found that "28 percent of participants reported changing how they heat their homes following weatherization work, [therefore] estimated savings for these participants may not be accurate, given Avista's deemed savings estimates." Cost-effectiveness is hindered when the program does not account for heating sources that change significantly after weatherization.

In addition, Staff noticed several differences between measures installed in Idaho and those installed in Washington where Avista has a much more cost-effective program. Forty-seven Energy Star products were installed in Washington, but none were installed in Idaho. Since refrigerators are an Energy Star product and are often a very cost-effective way to produce energy savings in low income households, their absence in Idaho is noteworthy.

Further, as a dual fuel utility, Avista can fund electric to natural gas furnace conversions as part of its low income program. Since these conversions reduce electrical consumption, they are funded by the electric DSM tariff rider. Despite their propensity for cost-effectiveness, Avista reports that no fuel conversions were installed in Idaho in 2011. Installing fuel conversions and Energy Star products in Idaho households may help improve the cost-effectiveness of Avista's low income weatherization program in Idaho.

Lastly, Staff believes it is necessary to reduce the percentage of funding that Avista contributes towards each home it weatherizes. Avista currently funds up to 100% per measure installed in a home, and often 100% of the cost to weatherize a home. In most cases, any cost to weatherize the home that exceeds available utility funding is federally funded. Under the TRC, Avista considers federal investments an importation of funds from outside the ratepayer population.<sup>23</sup> Federal expenditures in an Avista-weatherized home are therefore not captured as a cost. If Avista funded 85% of the measure cost, and claimed 100% of the savings, cost-effectiveness would be easier to achieve than under the current arrangement where Avista pays

<sup>20</sup> Avista DSM 2011 Annual Report, page 272.

<sup>21</sup> Avista 2010-2011 Multi-Sector Electric Impact Evaluation Report, May 25, 2012, conducted by Cadmus.

<sup>22</sup> Avista DSM 2011 Annual Report, page 19.

<sup>23</sup> Rocky Mountain Power also excludes federal costs from the TRC calculation.

100% of the measure cost. Neither Rocky Mountain Power nor Idaho Power fund more than 85% of each home they weatherize, so this change would make Avista's program more similar to the other two utility-funded low income weatherization programs. While this adjustment will remove some spending flexibility from the CAP, Staff believes that preserving the program, which depends on cost-effectiveness, warrants the restrictions.

### **Utility Cost-effectiveness Calculations**

#### **Energy Savings**

While preparing for the three low income weatherization cases last year, Staff discovered many differences in the way each company calculates cost-effectiveness. The largest and most important difference is how each company measures energy savings. As described earlier, Idaho Power uses the results of the EA4 or EA5 modeling software to estimate energy savings. During the workshop, Rocky Mountain Power and Avista confirmed that while they also use the EA4/5, they both use billing analysis results generated during their impact evaluations to adjust the EA4/5 results from estimates to actual energy savings.

Staff noted that Idaho Power has yet to conduct an impact evaluation of its program, and the Company confirmed that the program will receive a third-party impact evaluation this year. The impact evaluation will likely include a billing analysis, and if feasible, another evaluation method. If a billing analysis is conducted, Idaho Power points out that the analysis can be done using a household as its own control group in which the energy consumption of a particular home is measured before and after weatherization. This is similar to the method used by Cadmus in Avista's 2010-2011 low income impact evaluation.

Idaho Power emphasized that even after the impact evaluation, it will continue to use the EA5 because the Company's scalable method of determining funding amounts per measure based on the EA5's energy savings estimates has worked well. Staff can support continued use of the EA5 modeling software as long as the Company adjusts the energy savings used in cost-effectiveness calculations and acquisition reports to account for the impact evaluation results.

*Recommendation 1:* Staff recommends that Idaho Power use its third-party impact evaluation results to inform the savings estimates from the EA5 modeling software. After this adjustment, all three companies will be using verified energy savings estimates in their cost-effectiveness calculations. Many, but not all, impact evaluations find that actual savings are lower than the previous estimates. If this is the case for the energy saving produced by Idaho Power's program, this adjustment will decrease the cost-effectiveness of Idaho Power's program.

#### **Net-to-Gross Ratio**

The net-to-gross (NTG) ratio is applied to the energy savings generated by a program so that the program results only include savings that occurred because of the energy efficiency program rather than external factors. The National Action Plan for Energy Efficiency (NAPEE) states that "...the NTG deducts energy savings that would have been achieved without the



efficiency program (e.g., “free-riders”) and increases savings for any “spillover” effect that occurs as an indirect result of the program.”<sup>24</sup> Accurate NTG ratios can help determine the effectiveness of an energy efficiency program.

Since the centerpiece of many energy efficiency programs is incentive money from a utility in order to install energy efficiency measures, “free-riders” are frequently characterized as program participants who would have installed the energy efficiency measure without the incentive. Likewise, “spillover” is understood as people who installed the energy efficiency measure because of the program’s influence, but without receiving an incentive.

The Database for Energy Efficiency Resources (DEER),<sup>25</sup> a generally recognized source for NTG values, recommends claiming an 80% NTG ratio for many standard residential programs. An 80% NTG ratio means that 20% of the program participants would have installed the energy efficiency measure without the incentive.

Idaho Power claims 80% NTG for its low income weatherization program, which is the same figure it claims for its other residential DSM programs. The Company says it uses the standard residential NTG value for its low income program because Commission Staff has recommended its use in the past. In contrast, Avista and Rocky Mountain Power claim 100% NTG for their programs, a figure that CAPAI supports.

At the workshop, Avista, Rocky Mountain Power, and CAPAI expressed confidence that low income weatherization programs have extremely low, if any, free-ridership. Idaho Power also agrees that most low income program participants are very unlikely to weatherize their homes without help. CAP agencies report that free-ridership is zero because the weatherization candidates, by virtue of their income qualification for the program, cannot afford the retrofits. The CAP agencies pointed out that landlords have little incentive to pay for weatherization because utility bills are either paid directly by the tenants or added to the rental amount. ICL and NW Energy Coalition also agree with this conclusion.

*Recommendation 2:* Staff agrees that customers who qualify for LIHEAP heating bill assistance and who are then added to the CAP agency weatherization lists are extremely unlikely to have sufficient funds to weatherize their homes. Staff further agrees that landlords have little incentive to pay for energy efficiency measures when they are not responsible for paying the energy bill. Therefore, Staff recommends that utilities claim 100% Net-To-Gross for this program. This adjustment will increase the cost-effectiveness of Idaho Power’s program.

### **Percentage of Energy Savings Claimed per Residence**

Another prominent difference between the three utilities is the percentage of energy savings per weatherization project that each claims. Rocky Mountain Power funds 85% of the cost of each measure installed in a home, up to 85% of a home’s weatherization cost. Avista

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<sup>24</sup>National Action Plan for Energy Efficiency, “Understanding Cost-Effectiveness of Energy Efficiency Programs,” 2008, page ES-3.

<sup>25</sup> DEER provides energy savings estimates for residential and non-residential technologies.

pays 100% of the measures it funds in a home, which is usually about 100% of the project cost. Both Rocky Mountain Power and Avista claim 100% of the energy savings produced by a home that is weatherized through their low income programs.

Depending on the cost-effectiveness of the measure, Idaho Power funds up to 100% of the cost per measure, not to exceed 85% of the project cost per home. Idaho Power claims only the percentage of the energy savings that it funds per measure, rather than 100%. For example, if Idaho Power funds 85% of the cost in a home, it will claim 85% of the energy savings generated by that project.

During the workshop, Staff pointed out that all other DSM programs pay a partial incentive (for example, \$50 for a high efficiency clothes washer) but claim 100% of the savings from the high efficiency unit. Staff sees no reason why a different standard should apply to low income weatherization programs. Idaho Power states that it only claims the proportion of energy savings it funds to avoid double-counting savings that were also attained with federal funding. Staff appreciates this conservative approach, but has no evidence that the DOE is concerned with double counting energy savings. The DOE has not objected to Avista's and Rocky Mountain Power's long-standing practice of claiming 100% of the energy savings.

Also, leveraging federal weatherization funds is a primary reason that utilities operate and fund low income weatherization programs through CAP agencies, rather than create separate programs to be managed and funded entirely by each utility. Excluding the energy savings associated with the federal investments detracts from the benefit of leveraging external funding sources. The NW Energy Coalition and ICL agree that utilities should claim 100% of the savings produced by low income projects. Idaho Power says it is comfortable with this adjustment.

Recommendation 3: Staff recommends that utilities claim 100% of the energy savings produced by each low income weatherization project for which they provide funding. This adjustment will increase the cost-effectiveness of Idaho Power's program.

### **Indirect Administration Costs**

Utility DSM program implementation requires two types of internal administrative costs: direct and indirect administrative costs. Direct administrative costs can be directly assigned to each particular program. For example, the salary of a program manager is charged to the program s/he operates and is considered a direct administrative cost.

Besides direct administrative expenses, each program also requires regulatory, managerial, and financial oversight services, which are *indirect* administrative expenses. The exact amount of these indirect administrative expenses incurred by each program is difficult to assign precisely, even though each program requires the various services.

Each Idaho utility has a different method of assigning indirect overhead costs among its DSM programs. Avista assigns each program a dollar amount of indirect overhead that corresponds to the relative percentage of avoided cost that program achieves. Rocky Mountain

Power assigns indirect overhead costs based on the relative percentage of energy savings generated by the program as compared to the total jurisdictional DSM portfolio, which in this case is its Idaho service territory.

Idaho Power assigns no indirect administrative costs to its programs, including its low income program. Because Idaho Power does not include indirect administrative costs in its cost-effectiveness tests, Idaho Power's TRC and UCT are higher than they would be if these relevant costs were included. Cost-effectiveness calculations that do not include all overhead costs associated with program administration do not accurately reflect cost-effectiveness.

Idaho Power believes this recommendation would be very difficult to implement because most departments in the Company do not track their labor expenses by department served when it occurs in the normal course of business. Idaho Power also claims that Staff's suggested method does not align with how supply-side resources are valued by Idaho Power.

Staff maintains that supply-side resources include similar indirect overhead expenses, such as regulatory, managerial, and financial oversight costs, although it may be on a functionalized basis rather than assigned to individual projects. Staff believes that Idaho Power's departments would not need to track their expenses incurred in the normal course of business; these types of costs could be assigned on a proportional basis to DSM programs.

*Recommendation 4:* Staff recommends that Idaho Power develop a method to include indirect administrative overhead costs in its low income weatherization program cost-effectiveness in a manner than approximates how these expenses are assigned to supply-side resources. This adjustment may decrease the cost-effectiveness of Idaho Power's program.

#### **Evaluation Costs**

The Memorandum of Understanding for Prudency Determination of DSM Expenditures signed in December 2009 by the Commission Staff, Idaho Power, Rocky Mountain Power, and Avista required those utilities to evaluate all substantive DSM programs every two or three years. As a result, the cost of these evaluations can cause the cost-effectiveness of DSM programs to decline. This can be particularly true for programs with smaller budgets. In April 2011, Rocky Mountain Power filed case PAC-E-11-13 requesting permission to suspend future evaluations of its low income portfolio. The Company claimed that the large cost of evaluations on a program with a small budget and energy savings damaged the program's cost-effectiveness.

This is another area where each utility has calculated cost-effectiveness differently. Before 2011, Rocky Mountain Power included the full cost of the evaluation in the program level cost-effectiveness calculation during the year in which the cost was incurred. Beginning in 2011, Rocky Mountain Power began including the evaluation costs for all DSM programs, including its low income weatherization program, at the portfolio level. Avista includes the low income evaluation cost in the cost-effectiveness calculation at the Idaho electric portfolio level, rather than the individual program level. This approach frees programs with smaller relative energy savings from bearing the costs of an evaluation in a cost-effectiveness calculation, but still

ensures that the evaluation cost is captured in a broader cost-effectiveness analysis. ICL supports this method of capturing evaluation costs in cost-effectiveness calculations.

Idaho Power has not yet evaluated its low income program, but it expects to include the total cost of the evaluation in one year's program level cost-effectiveness calculation. Staff understands that Idaho Power's relatively large low income program budget and energy savings makes it easier to absorb the cost of an evaluation in a single year.

Recommendation 5: Requiring low income programs, which often have smaller budgets and energy savings relative to other DSM programs, to incorporate the full cost of an evaluation in a single year could lead to extremely lean evaluation budgets, and possibly lower quality evaluations. Staff recommends that utilities have the option to incorporate program evaluation costs at the jurisdictional portfolio level rather than the program level. Alternatively, Staff recommends that utilities have the option to amortize evaluation costs over the two to three years between evaluations for program level cost-effectiveness calculations.

### **Energy Conservation Adders**

Consistent with the Northwest Power and Conversation Act, Avista and Rocky Mountain Power include a 10% energy conservation preference adder to their cost-effectiveness calculations for all of their DSM programs, including their low income weatherization programs. The 10% adder was adopted to show a preference for energy efficiency over supply side resources, not to capture any specific unquantified non-energy benefits. Avista adds 10% to its avoided cost and Rocky Mountain Power adds 10% to its TRC benefits, which it refers to as the PacifiCorp TRC (PTRC). Idaho Power does not include a conservation preference adder on any DSM program, including its low income program.

The workshop included extensive discussion about energy conservation adders used by several other state commissions. In particular, the Northwest Energy Coalition presented a February 7, 2012 order from the State of Vermont Public Service Board that ordered that energy efficiency providers apply a 15% non-energy benefits adder to energy benefits, as well as a 15% adder to the energy benefits for low income energy efficiency investments. Staff hesitates to recommend any adder when the underlying derivation of the adder or other justification for the percentage has not been specifically provided.

Importantly, while Rocky Mountain Power reports the PTRC in its annual DSM report, it does not make resource-acquisition decisions based on the PTRC. Idaho Power does not oppose including a 10% adder in its annual DSM report, but similar to Rocky Mountain Power, it "does not believe that the use of a conservation adder is appropriate in cost-effectiveness calculations while conducting supply-side resource planning." Only Avista uses a 10% adder when deciding what resources to acquire. Staff believes that additional evaluation would be required if acquired resources were not cost-effective without the adder.

Recommendation 6: Staff does not oppose Rocky Mountain Power and Avista's use of a 10% energy conservation preference adder in their low income DSM cost-effectiveness

calculations. Use of the adder is widely accepted by state utility regulatory commissions on a regional basis and its use is included in the Northwest Power Act. Staff would not oppose Idaho Power's use of this adder in its low income cost-effectiveness calculations. Including a 10% conservation preference adder would increase the cost-effectiveness of Idaho Power's low income weatherization program.

### **Payment-related, Economic, and Participant Non-Energy Benefits**

Cadmus' April 2011 evaluation of Rocky Mountain Power's low income weatherization program raised the issue of non-energy benefits. Cadmus' analysis maintained that Rocky Mountain Power's program was cost-effective, but only when non-energy benefits were included. Although no workshop participant disputed that additional often unquantified—non-energy benefits occur as a result of these programs, there was spirited discussion about which non-energy benefits the cost-effectiveness analysis should include.

Staff believes that non-energy benefits are an important aspect of cost-effectiveness because they, not the energy savings, are often the primary incentive for customer participation. Further, if a cost-effectiveness analysis captures all costs paid by the customer to install the measure (which are often much larger than the incentive provided by the utility), the analysis should also capture all of the benefits that accrue to the customer. Although these benefits are important, they are often very difficult to quantify and for that reason are often omitted from cost-effectiveness calculations.

### Payment-related Non-Energy Benefits

In a report prepared for CAPAI in Case No. PAC-E-11-13, Roger Colton discussed payment-related benefits and recommended that they be incorporated into evaluations of low income weatherization programs.<sup>26</sup> Examples of payment-related non-energy benefits are reductions in arrearages, reductions in bad debt, and reductions in collection, disconnection, and reconnection expenses that may occur when low income customers' bills are reduced through weatherization. These non-energy benefits accrue to the utility and the ratepayers, as well as to the customer whose home is weatherized.

All workshop participants agreed that when payment-related non-energy benefits can be quantified and associated with the low income weatherization program with reasonable certainty, it is appropriate to include them in the cost-effectiveness analysis. Rocky Mountain Power pointed out, however, that assigning a dollar value to payment-related savings can be more difficult than is often assumed. Idaho Power concurred that calculating these benefits is "very difficult if not impossible" because it requires the utility to determine that the reductions were generated by the weatherization measures rather than a host of outside factors, including the

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<sup>26</sup> Roger Colton (October 2011), "Assessing the Cost-Effectiveness of Low Income Weatherization in Idaho: A Review of the Rocky Mountain Power Evaluation," pp. 26-28. Colton references the seminal study on low income DSM programs done by the Oak Ridge National Laboratory in 1994.

financial circumstances of the customer. Similar to Idaho Power and Rocky Mountain Power's claims, the Northwest Power and Conservation Council's Regional Technical Forum (RTF)<sup>27</sup> concluded that it is difficult to quantify non-energy benefits flowing to the utility, such as reduced arrearages, disconnections, reconnections, and cost collection activities.

Staff and other parties also noted that the dollar value associated with payment-related benefits is relatively small. In its impact evaluation, Cadmus estimated the value of reduced arrearages for Rocky Mountain Power from 2007 to 2009 was only \$8,000.

Avista pointed out that under the TRC, reductions in arrearages, bad debt, collection, disconnection, and re-connection charges could reasonably be considered a transfer of benefits within the ratepayer population. Transfers have no net impact on the TRC.

#### Economic Non-Energy Benefits

Economic non-energy benefits are even more difficult to quantify than payment-related benefits. These include benefits to the local economy, including jobs that result from equipment purchases and installation costs. Cadmus tried to measure the economic benefits of Rocky Mountain Power's low income weatherization program using Idaho-specific data as inputs in an economic-multiplier model. But the model's assumptions and analysis were not transparent enough to convince Staff of the model's accuracy.

#### Participant Non-Energy Benefits

Workshop participants also discussed including non-energy benefits that accrue to the program participant or property owner, such as increased property values, longer lives for weatherized dwellings, and the reduced use of other fuels (e.g., wood). The Northwest Energy Coalition supported monetizing the value of health benefits and the value of improving the conditioned space, as a government-funded effort in New Zealand has already begun doing. Another workshop participant suggested counting takeback<sup>28</sup> as a non-energy benefit because non-functioning appliances repaired through the weatherization program clearly benefit the participant.

No one at the workshop suggested concrete mechanisms to value non-energy benefits that accrue to program participants. Similarly, the RTF published a March 2012 study by Navigant Consulting, which said that "Conclusive estimates of the monetary impact of these [ancillary] elements do not generally exist... [A]ncillary impact(s) may be included in a measure cost analysis if it can be sufficiently demonstrated to the RTF that the impact(s) are significant and monetizable."<sup>29</sup>

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<sup>27</sup> The RTF is a technical advisory committee of the Northwest Power and Conservation Council.

<sup>28</sup> The increase in electrical consumption some program participants experience when, for example, a non-working furnace is repaired and begins consuming energy.

<sup>29</sup> "Guidelines for the Development and Maintenance of Incremental Measure Costs and Benefits Estimates," prepared for the RTF by Navigant Consulting, March 2012, page 19. Underlining in the original.

Staff agrees that conclusive evidence about the value of these participant benefits has not yet been established. Although Staff opposes including non-energy benefits that accrue to program participants based on the insufficient quantification and justification provided thus far, Staff will accept the 10% DSM preference adder and continue to evaluate the merits of these benefits for possible future inclusion.

Staff does not support including non-energy benefits that cannot be valued and calculated with adequate transparency and rigor. Occasionally, just enough non-energy benefits are included in a program evaluation to reach a pre-determined level of cost-effectiveness. Staff believes this is inappropriate. Staff suggests that in-house and third-party evaluators work to improve a program's cost-effectiveness through decreased costs and increased energy benefits, and not try to make a program simply *appear* more cost-effective through the arbitrary use of non-energy benefits.

By not devoting resources to quantify non-energy benefits that are by their nature difficult or impossible to quantify, we can reduce the complexity and perhaps expense of low income weatherization program evaluations. That would improve cost-effectiveness for utilities that choose to include evaluation costs at the program level or portfolio if done at that level.

*Recommendation 7:* Staff recommends that payment-related non-energy benefits, such as reductions in utilities' arrearages and bad debt, as well as collection, disconnection, and reconnection expenses that may accrue when low income customers' bills are reduced through weatherization, be quantified and included in cost-effectiveness analyses when possible.

Staff recommends excluding economic non-energy benefits and non-energy benefits that accrue to program participants because they have not yet been rigorously quantified. These include increased property values, extended lives of weatherized dwellings, health impacts, takeback, and increased comfort.

Including quantifiable payment-related non-energy benefits will increase the cost-effectiveness of low income programs over what they otherwise would have been. However, excluding the economic non-energy benefits already included in Rocky Mountain Power's Cadmus evaluation will decrease that program's cost-effectiveness.

#### **Utility-Funded Health and Safety Measures and Repairs as Non-Energy Benefits**

In order to leverage federal money for low income weatherization through the State of Idaho Weatherization Program, each utility's low income program includes funding for health and safety measures and repairs. These measures are sometimes required before the energy efficiency measure can be installed. For example, mechanical ventilation may be required when a home is weatherized to ensure safe air quality for the resident. But ventilation reduces energy savings. Although health and safety measures like ventilation, roof repair, carbon monoxide detectors, and electrical wiring repairs can consume up to 15% of a utility's annual weatherization budget, they do not produce energy savings. Therefore, health and safety measures can significantly impede cost-effectiveness.

Avista explained in the workshop that it quantifies utility-funded health and safety measure benefits as equal to the dollar amount of the investment in its cost-effectiveness calculations.<sup>30</sup> For example, if Avista spends \$100 on a furnace repair, Avista claims \$100 of non-energy benefits for that repair. Claiming a one-to-one dollar cost/benefit eliminates the difficulty in quantifying the non-energy benefit associated with health and safety measures. In cost-effectiveness tests, this treatment neutralizes the negative effect of health, safety, and repair measures on programs. Workshop participants agreed that the dollar-for-dollar assumption very likely understates the non-energy benefits associated with health, safety, and repair measures. Further, this modification only affects the TRC because the health, safety, and repair measure's benefits accrue to the program participant.

Idaho Power points out that only about 3% of its annual low income budget is used for health, safety and repair measures. Therefore, the impact of claiming these as a benefit in cost-effectiveness calculations in its program is anticipated to be relatively small. Idaho Power's policy is to save the expense of trying to calculate more difficult to quantify non-energy benefits when a program passes the TRC or UCT on energy savings alone. Since its low income program has historically passed these tests, Idaho Power has never tried to quantify or monetize any associated non-energy benefits. While this approach has some advantages, it could be viewed as backing into cost-effectiveness with non-energy benefits when the need arises.

Rocky Mountain Power paid about \$24,000 towards healthy, safety, and repair measures in 2011. It believes that off-setting this cost with a \$24,000 benefit will not significantly impact the program's cost-effectiveness. However, since utility investments in health, safety, and repair measures can be up to 15% of a low income program's expenditures, it could have a significant impact if health, safety, and repair expenditures increase in future years. Rocky Mountain Power also cautioned that combining a 10% adder with utility and federally-funded non-energy benefits may overvalue non-energy benefits.

Staff appreciates Rocky Mountain Power's concern. However, Staff notes that the Rocky Mountain Power already includes a 10% energy conservation adder in its PTRC and included a significant amount of economic non-energy benefits as estimated by Cadmus in its 2010 cost-effectiveness analysis. In fact, Rocky Mountain Power's 2007-2009 reported TRC with economic non-energy benefits and arrearages was 1.23. Rocky Mountain estimates that if a 10% adder as well as utility and federally-funded non-energy benefits was included per Staff's recommendations and applied to 2011 program data, the TRC would be 1.07.

Staff recognizes that funding levels and other circumstantial changes could affect the difference between TRC ratios from 2007-2009 and 2011. However, Staff's recommendations produce a more conservative cost-effectiveness estimate than Rocky Mountain Power's methodology. Staff prefers to value non-energy benefits on a more conservative and controlled basis rather than as part of a much less well-understood economic model.

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<sup>30</sup> Neither Idaho Power nor Rocky Mountain Power claim a benefit for health, safety, and repair measures.



Staff understands that this particular type of non-energy benefit quantification is not broadly accepted. It may not currently be used by any other utility besides Avista and it is not directly recommended in any cost-effectiveness manual. However, the list of non-energy benefits that are quantified and monetized by utilities across the country is long, diverse, and undefined. Since the proposed method likely underestimates the value of the health, safety, and repair measure and provides a transparent one-to-one ratio of benefits to investments, Staff is comfortable recommending its use even though we have opposed the use of less quantifiable non-energy benefits that accrue to program participants. ICL also supports including utility-funded health, safety, and repairs measures as non-energy benefits.

Recommendation 8: Staff recommends that Avista continue quantifying utility-funded health, safety, and repair measures as a dollar of non-energy benefits for each dollar of cost. Staff recommends that Idaho Power and Rocky Mountain Power apply this methodology to their cost-effectiveness calculations. This adjustment will increase Idaho Power and Rocky Mountain Power's cost-effectiveness.<sup>31</sup>

#### **Federally-Funded Health and Safety Measures and Repairs as Non-Energy Benefits**

After the workshop discussion about utility investments in health, safety, and repair measures, Avista suggested treating federally-funded non-energy benefits the same way.<sup>32</sup> That would mean utilities could claim a dollar of non-energy benefits for each dollar of federal investment in health, safety, and repair measures.

The most significant difference between utility-funded and federally-funded non-energy benefits is that federally-funded non-energy benefits do not always appear as a *cost* in the TRC. The TRC often only captures costs that are paid by ratepayers in the service territory. Federal expenditures, including tax credits, are sometimes considered an importation of funds from outside the ratepayer population and therefore are not captured as a cost.

The TRC, however, captures the *benefits* of federally-funded measures. In this application, that means including federally-funded health, safety, and repair measures as non-energy benefits would increase the benefits included in the TRC, but not the costs, thereby improving cost-effectiveness. No Idaho utility, including Avista, currently claims federally-funded health, safety, and repair measures as non-energy benefits.

This treatment of federally-funded non-energy benefits is consistent with Avista's previous treatment of ARRA-funded efficiency rebates (e.g., stimulus-funded appliance rebate program), and as previously stated, is consistent with generally accepted TRC methodology.<sup>33</sup> It

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<sup>31</sup> The increase in cost-effectiveness for Idaho Power is anticipated to be relatively small because Idaho Power only spends a small percentage of their weatherization funds on health and safety measures.

<sup>32</sup> The majority, but not all, of non-utility funds for low income weatherization comes from the federal government. In Idaho, funds from several sources, including the federal government, are administered by the State of Idaho or Tribal Governments in Idaho. For ease of discussion, all of this non-utility money will be referred to as federal funds.

<sup>33</sup> The American Recovery and Reinvestment Act of 2009.

is also consistent with Avista and Rocky Mountain Power's method for capturing federally-funded energy savings measures. These two utilities claim 100% of the savings produced by homes weatherized through the program, although the utilities have sometimes funded less than 100% of the measures in a home.<sup>34</sup> Including the entire energy savings produced by a project to take advantage of leveraged federal funds is one of the primary reasons stated by the Commission for running utility weatherization programs through CAP agencies. This modification would not impact any cost-effectiveness test other than the TRC, similar to the recommended treatment of utility-funded non-energy benefits.

Rocky Mountain Power said it could accept this approach if the criteria determining health, safety, and repair measures are clear. Weatherization Program Notice 11-6 contains a comprehensive list of DOE-allowed health, safety, and repair measures.<sup>35</sup> Weatherization Program Notice 12-09 provides guidance on repairs and could be used to determine if a measure is an efficiency measure or a health, safety, and repair measure.<sup>36</sup>

However, Rocky Mountain Power points out that it does not currently track federal health, safety, and repair expenditures in homes weatherized through their program. Rocky Mountain Power expressed concern that tracking these data could be cost-prohibitive. Although Avista originally developed the idea of incorporating federally-funded health, safety, and repair measures as non-energy benefits, it is still working with its CAP agency to capture these data.

Idaho Power can likely quantify these data with relatively minor modifications to its tracking systems because the Company already collects very detailed weatherization invoices from the CAP agencies. Staff understands that the invoices that populate Idaho Power's database record the federally-funded measures in a home, but since Idaho Power has not previously pulled that information from the database it cannot yet confirm that these data can be tracked without excessive cost.

Idaho Power has expressed reservations about excluding some of the costs associated with a project in the TRC. The literature on cost-effectiveness is not definitive on this point. Most manuals say that federal tax credits can and/or should be treated as an importation of funds into the ratepayer population and therefore should not be counted as a cost. However, since the federal funds for weatherization are an importation of funds supplied from outside the ratepayer population, Staff is comfortable excluding them as costs. ICL also supports this methodology.

Recommendation 9: Staff recommends that the utilities have the option to claim one dollar of non-energy benefits for each dollar of federal funds invested in health, safety, and repair measures. Staff recommends that this adjustment remain optional since utilities may have difficulty collecting accurate data on federally-funded measures and because cost-effectiveness

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<sup>34</sup> Rocky Mountain previously funded 75% of the measures in a home and Avista funded 85%. Currently Rocky Mountain funds 85% of the measures in a home and Avista funds 100%.

<sup>35</sup> DOE, Weatherization Program Notice 11-6, Effective Date: January 12, 2011.  
[http://waptac.org/data/files/website\\_docs/government/guidance/2011/wpn%2011-6.pdf](http://waptac.org/data/files/website_docs/government/guidance/2011/wpn%2011-6.pdf)

<sup>36</sup> U.S. DOE, Weatherization Program Notice 12-09, Effective Date: June 27, 2012.  
[http://waptac.org/data/files/website\\_docs/government/guidance/2012/wpn12-09-incidenta-repair-measure.pdf](http://waptac.org/data/files/website_docs/government/guidance/2012/wpn12-09-incidenta-repair-measure.pdf)

manuals provide discretion on whether federal funds should be included as a cost in the TRC. Staff's recommendation is consistent with the attribution of federal funds in other programs, TRC methodology, and treatment of energy savings. If adopted, this adjustment is likely to increase all three programs' cost-effectiveness, although the exact impact is unknown because the utilities have not previously tracked the amount of federal funds spent on health, safety, and repair measures in utility-funded low income weatherized homes.

### **Discount Rate Modification**

In energy efficiency cost-effectiveness calculations, the discount rate is applied to the future value of costs and benefits to allow the benefit-cost ratio to be viewed on a Net Present Value (NPV) basis.<sup>37</sup> A positive discount rate reduces the value of a program's benefits. Because benefits accrue over multiple years, decreasing the discount rate increases the value of the benefits. Costs are unaffected by modifying the discount rate because costs occur almost exclusively in the first year of a program.

Decreasing the discount rate will increase the NPV of a DSM program, which in turn increases cost-effectiveness. For example, a 7% discount rate applied to \$135 in benefits that accrue over five years will bring the NPV to about \$100. Applying a 4% discount rate to the same \$135 in benefits that accrue over five years will bring the NPV to about \$110.

Historically, Idaho utilities have used the Weighted Average Cost of Capital (WACC), currently around 7%, as the discount rate for all benefits produced by a DSM program. The WACC estimates the time value of money for the utility based on the utility's borrowing costs and anticipated return on investments. But DSM programs, including low income weatherization, include benefits that accrue to participants in addition to the utility.

Recently, there has been much discussion about the accuracy of applying the utility's discount rate—the WACC—to participant benefits. Many groups agree that participant investment-value is unrelated to utility investment-value; thus, it is incorrect to apply the utility's discount rate to participant benefits.

During the workshop, Avista proposed using a different discount rate depending on the group to which benefits accrue. This would mean applying the WACC as the discount rate for utility benefits, and an alternate discount rate for participant benefits. In this case, participants' benefits are the non-energy benefits generated by investments in health, safety, and repair measures. Alternate discount rates are primarily relevant to the TRC because that test includes benefits that accrue to the utility and participants. The UCT only includes utility costs and benefits, so it is reasonable to use only the WACC in the UCT.

It can be difficult, however, to determine the correct discount rate for participants. For example, the discount rate for participant benefits could be 1%, which reflects the interest rate on treasury bills, or 4%, which reflects home mortgage interest rates.

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<sup>37</sup> It may help to think of the discount rate as an interest rate, applied backward in time to a program's benefits, to determine the opportunity cost of making a particular investment.

During workshop discussions, the Northwest Energy Coalition provided an order from the Vermont Public Service Board ordering “energy efficiency providers regulated by the Board” to use a 3% discount rate for cost-effectiveness screening of “all efficiency investments.” Regionally, the Sixth Northwest Conservation and Electric Power Plan assumes 5% as the real discount rate, which is “based on mid-term forecasts for the cost of capital to the entities or sectors examined,”<sup>38</sup> and incorporates a 3.2% discount rate for residential customers.<sup>39</sup> The Oak Ridge National Laboratory applied a 3.2% discount rate for all non-energy benefits quantified in its 2002 report, “Non-Energy Benefits from the Weatherization Assistance Program: A Summary of Findings from the Recent Literature.” ICL also supports the use of a modified discount rate that is directly aligned with the perspective being measured.

In its DSM 2011 Report, Idaho Power concluded that “since the participant benefit is based on the anticipated bill savings of the customer, it was determined that the WACC was not an appropriate discount rate.” In that report, the Company began applying a 3.88% discount rate to participant bill savings and non-energy benefits.<sup>40</sup> This “real discount rate” value was derived by applying an escalation or inflation rate of 3% to Idaho Power’s WAAC (7%).

During the workshop, Staff pointed out that a modified discount rate could be applied to all DSM programs, not just low income programs. Idaho Power’s 2011 DSM Report follows this logic; the 3.88% discount rate is applied to participant benefits in all programs.

But not all workshop participants agreed that adjusting the discount rate for different streams of benefits based on recipient is appropriate. At the workshop, Rocky Mountain Power hesitated to endorse changing the discount rate for its cost-effectiveness tests claiming that applying the WACC to all benefits lets Rocky Mountain Power compare DSM resources to supply side resource more readily. Several participants pointed out that changing an assumption in the benefit-cost ratio does not make comparing the results more difficult, but could make the results more accurate. Rocky Mountain Power also said it could not support a modification without first having its power-supply planning team analyze the effect of changing the discount rate.

Staff supports the use of a modified discount rate for valuing participant benefits. However, the only non-energy benefits recommended for use in low income weatherization programs are investments in health, safety, and repair measures. Staff recommends valuing those participant benefits as an amount equal to the investment. This means that the benefits are already valued on a NPV basis and therefore applying a modified discount rate would have no effect.

Recommendation 10: Staff supports Avista’s proposal to use and Idaho Power’s current use of a modified discount rate for participant benefits. However, the only type of participant benefits Staff has supported for low income weatherization programs are health, safety, and

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<sup>38</sup> Sixth Northwest Power and Conversation Plan, Appendix N: Financial Assumptions and Discount Rate, N-2.

<sup>39</sup> Sixth Northwest Power and Conservation Plan, Appendix N: Financial Assumptions and Discount Rate, N-8.

<sup>40</sup> Idaho Power Demand-Side Management 2011 Annual Report: Cost-Effectiveness Supplement 1, page 3.

repair measures that, using Staff's recommended method, are already valued on a NPV basis. Therefore, applying a modified discount rate to these benefits would have no effect on cost-effectiveness.

### **Creating a Low Income Weatherization Specific TRC**

Some groups, both at the workshop and nationally, maintain that traditional cost-effectiveness tests do not adequately represent the unique benefits produced by low income weatherization programs. Further, some maintain these tests incorrectly penalize the unique aspects of low income weatherization programs by including all of the costs of the program, but not including all of the benefits that accrue to participants, which are often more substantial for low income program participants than other DSM program participants.

One solution to this problem is to create a low-income specific TRC. California has moved in this direction by creating a Low Income Public Purpose Test (LIPPT) as the standard by which to determine prudence, rather than using more narrow cost-effectiveness tests.

Staff review of this approach found that the California public purpose test is a TRC that includes a generous array of non-energy benefits. The LIPPT "is designed to include a broader range of non-energy benefits"<sup>41</sup> than even the standard public purpose test, which itself includes an expansion of benefits over the TRC. Among other non-energy benefits, the LIPPT includes participant savings from fewer moves, fewer lost sick days, improved comfort, reduction in fire losses, and participant value from fewer calls to the utility, which are valued as time savings. As previously discussed in this report, while these types of benefits are important, they have not yet been quantified with adequate rigor or transparency for Staff to recommend their inclusion.

The NW Energy Coalition believes the idea of creating a separate, low-income program cost-effectiveness test should be more thoroughly studied. It maintains that many of the listed non-energy benefits help all utility customers, even if the benefits are hard to quantify. Staff understands that perspective, but cannot support the inclusion of additional energy or non-energy benefits, beyond the preference adder, which cannot be rigorously and transparently quantified. Thus far, few non-energy benefit calculations have met this standard, although Staff is open to the possibility that future calculations may meet this threshold.

Other workshop participants recommended that low income programs not be subjected to rigorous cost-effectiveness tests, but instead be deemed prudent by the Commission in part from a public assistance perspective. Avista has suggested a similar approach to its Washington regulators.

Although these options may be trends in other states, Staff believes that low income weatherization programs should be viewed as an alternative to supply side resources rather than as public assistance. Further, the Commission supported this view in Order No. 32426 when it wrote, "we are concerned about the cost-effectiveness of Idaho Power's low-income weatherization program. Because ratepayers fund Idaho Power's weatherization programs, we

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<sup>41</sup> The Low Income Public Purpose Test: Final Report, TecMarket Works, May 2001, page 1.

have a responsibility to ensure that these programs are cost-effective and designed to maximize benefits for all customers.”

Concern has been raised that if the recommendations in this report are only applied to low income weatherization programs, that Staff will be, in effect, recommending a separate cost-effectiveness test for low income weatherization programs. Staff disagrees with this assessment. The recommendations in this report merely clarify how standard cost-effectiveness tests should be applied to low income programs in Idaho, which are currently being calculated in many different ways. Several of these recommendations actually make low income cost-effectiveness calculations *more* consistent with standard cost-effectiveness guidelines. Further, many of these recommendations, including a modified discount rate, capturing evaluation costs at the portfolio level, claiming 100% of savings, applying a 100% NTG value, and including a limited number of strictly-defined non-energy benefits are already in use by at least one of the three utilities.

Recommendation 11: Staff does not recommend constructing a specific cost-effectiveness test for low income weatherization programs.

## **Program Implementation**

### **Evaluation Methodology**

Beginning with the Cadmus evaluation report cited in Case No. PAC-E-11-13 and continuing through other recently completed Commission cases addressing low income weatherization, the issues surrounding program cost-effectiveness often centered on evaluation methodology. Billing analyses are the most common method used to measure the energy savings produced by whole house weatherization programs because they capture the effects of multiple measures installed in a single home. But billing analyses in residential settings, particularly with low income customers, are problematic because the pre and post conditions cannot be as precisely controlled as they can be in a commercial or industrial setting. Staff recommends that the utilities examine evaluation methods that may inform or complement billing analyses for low income programs.

Low income billing analyses sometimes determine energy savings by comparing the energy consumption of program participants after weatherization (the treatment group) to non-participants (the control group). Besides pre and post inconsistencies, the accuracy of billing analyses can be undermined if relevant differences between the treatment and control groups are not mitigated.

Roger Colton, commenting in Case No. PAC-E-11-13, found several places where the Cadmus evaluation failed to adequately control for differences between the participant and non-participant groups. CAPAI maintains that these lapses inaccurately reduced the participant group's energy savings and incorrectly reduced the non-participants group's energy consumption. Therefore, the study underestimated the energy consumption difference between program participants and non-participants.

Staff agrees with some of Mr. Colton's findings and conclusions. To correct many of these shortcomings, Staff recommends stringent controls between participants and non-participants in the billing analysis if the utility chooses to use non-participants as the control group. Previously weatherized homes (funded with either utility or federal money) should be excluded from the non-participant group. Evaluations should control for energy savings produced by service disconnections in the non-participant group. Evaluations should also explore how a declining local economy and utility rate increases could affect non-participants differently than participants. Lastly, evaluations should not emphasize customer satisfaction surveys to the detriment of very rigorous billing analysis controls.

CAP agencies prioritize weatherization services for homes with seniors, children, and disabled customers. These households could be more financially disadvantaged than other low income customers. Reduced financial resources could reduce consumption in the prioritized groups as compared to non-participants, so impact evaluations should control for this difference as much as possible.

In addition, CAP agencies reported at the workshop that between 50% - 80% of all homes are weatherized in an emergency situation. Emergencies include, for example, mid-winter furnace failures. Impact evaluations should control for emergency weatherization measures that might further skew the differences between the participant and non-participant group.

All these factors almost certainly contributed to artificially low energy consumption in the non-participant group. This list is not exhaustive, and Staff recommends that utilities explore, quantify, and control for other discrepancies between the treatment and control groups.

Rocky Mountain Power has consistently maintained that Cadmus' methodology was conceptually and analytically sound, but acknowledges that it did not control for the effects of previously weatherized homes and service disconnections in the non-participant group. After the workshop, Rocky Mountain Power and Staff discussed Staff ways to address some of these concerns in future billing analyses, including controlling for previously weatherized homes and service disconnections in the non-participant group.

Idaho Power has pointed out that the control group for a billing analysis does not have to be non-participants. Program participants can be their own control group: the evaluator can measure the energy consumption of a home before and after weatherization. This could remove the problem of matching or controlling for the differences between the treatment and control groups. Avista's 2012 low income impact evaluation, conducted by Cadmus, also used this method.

Rocky Mountain has expressed concern that barriers to collecting sufficient data to implement these controls potentially include cost, adequate cooperation from CAPAI and the CAP agencies, and regulatory filing deadlines. Staff believes that including evaluation costs at the portfolio level—one of this report's recommendations that Rocky Mountain Power has already implemented—will mitigate cost-effectiveness concerns. Although Staff has not been informed of any deficiencies in this area previously, Staff believes that the recent focus on

funding for low income weatherization programs will encourage increased responsiveness from both CAPAI and the CAP agencies. Staff is unaware of any Idaho regulatory filing deadlines that impede comprehensive data collection.

Staff also recommends that utilities vary the contractors they hire to evaluate these programs. Ecotope and Cadmus have each evaluated Avista's low income weatherization program once. Cadmus has evaluated Rocky Mountain Power's program twice. Future evaluations will be more informative if a variety of evaluators and methods are used.

Rocky Mountain Power has agreed that varying contractors could be "more informative," but also pointed out that consideration must be given to contractor cost and competency. Staff agrees that the cost of evaluations should be controlled, but points out that there are many well-qualified evaluators in the region who are well-versed in utility impact and process evaluations. Rocky Mountain Power can leverage this supply to lower costs. Staff believes that while it may be less expensive to rehire the same evaluator several years in a row, an implicit bias towards the utility may develop over time.

Also, if the same evaluator conducts multiple impact evaluations of the same program, there is an incentive for the evaluator to find the results it published in the previous evaluation were accurate. The same pattern can hold true for process evaluations. If the utility incorporates recommendations made by the evaluator in its first report, there is a clear incentive for the evaluator to find that the utility's program is now very effective. If either of these situations occur, ratepayers will have paid a premium for an independent, third-party evaluation, but could receive evaluations that are not much more independent than if the utility had conducted them.

In expressing its reservations, Rocky Mountain Power asked that this item remain a recommendation and not a requirement. Staff clarifies that all items in this report are Staff recommendations, not Commission requirements.

*Recommendation 12:* Staff recommends that the utilities incorporate additional evaluation methods to inform or complement billing analyses for low income programs whenever possible. If non-participants are used as the control group in a billing analysis, Staff recommends rigorous controls between the two groups, which may include but not necessarily be limited to, previously weatherized homes, service disconnections, economic decline and rate increases, and households prioritized for weatherization, including emergencies. Incorporating these controls and/or other evaluation and billing analysis methods may increase all three programs' cost-effectiveness. Staff also recommends that utilities vary the independent contractors hired to evaluate these programs.

### **Fixed Annual Funding versus Roll-over of Unspent Funds**

In tandem with the recent cases in which CAPAI asked the Commission to increase low income weatherization funding, a recent problem has been unspent low income program funds. For example, in 2010, Rocky Mountain Power funded two CAPs approximately \$133,000 of the program's \$150,000 annual available budget, leaving about \$17,000 in unspent funds. With the



suspension of its natural gas low income program, Avista may have unspent funds in 2013. Since utilities do not dispense low income weatherization funding until they receive an invoice from a CAP agency, unspent weatherization funds suggest that the CAPs, not the utility, had difficulty spending the funds that year.

Avista and Rocky Mountain Power fund their low income weatherization programs through their DSM tariff riders. Unspent low income funds are not carried over into the next year, but they can be used for other programs in the current year.

Idaho Power's Weatherization Assistance for Qualifying Customers (WAQC) program is funded through base rates. Since utilities are allowed to keep any unspent money allocated in base rates, the Commission has ordered Idaho Power to carry over unspent low income weatherization funds into the next year.<sup>42</sup> Idaho Power carried over \$50,000 in unspent funds from 2010 into 2011.

Rocky Mountain Power and the CAP agencies agreed that unspent funds in 2010 were caused by the large influx of ARRA funding that the CAP agencies needed to spend first. None of the workshop groups anticipate that spending all of the utility money will be a problem in the future, although it is important to note that this discussion took place before the Commission approved Avista's request to suspend its natural gas programs.<sup>43</sup> Unspent program funds are rarely a problem, and when it is, the funds are applied either to low income weatherization programs in future years or other programs in the current year.

The NW Energy Coalition believes that because of the need for more low income resources, any unspent funds should be used for low income weatherization and/or education programs rather than transferred to other DSM programs. The Coalition maintains that since all low income customers pay into the DSM tariff rider, but low income weatherization/education programs are the only realistic way for low income customers to participate in DSM programs, transferring unspent funds to other DSM programs unfairly restricts their ability to participate. While Staff would prefer that all customers have equal opportunity to participate in DSM programs, Staff continues to believe that regardless of direct participation, all customers, including low income customers, benefit from funding cost-effective DSM because it defers investment in a more costly generation resource.

Recommendation 13: Staff believes that Idaho Power should continue to comply with Order No. 29505 which directs the Company to carry over unspent low income weatherization funding from base rates into the following year.<sup>44</sup> Staff also recommends that Avista and Rocky Mountain Power continue to use any unspent low income funds for other DSM programs, consistent with current practice for all programs funded through DSM tariff riders.

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<sup>42</sup> Page 32 of Commission Order No. 29505, Case No. IPC-E-11-03, states "Any unpaid funds shall carry over and be available in the next year."

<sup>43</sup> The suspension was approved by Order No. 32650, Case No. AVU-G-12-03/AVU-G-12-06.

<sup>44</sup> Page 32 of Order No. 29505, Case No. IPC-E-03-13, states "Any unpaid funds shall carry over and be available in the next year."

### **Capture Project-Level Data to Enable Evaluation and Program Management**

A comprehensive data management system to track expenditures and energy savings on a measure by measure basis is an important tool with which to make program management decisions and enable independent, third-party evaluations.

Avista maintains a fully electronic data transfer via web portal from its CAP agency.<sup>45</sup> Data collected by the utility through this system includes date of installation, invoice date, costs per measure, and verified savings estimates per measure, and amount of each measure funded by Avista.

Idaho Power has also built a fully electronic data transfer system via web portal through which the CAP agencies upload data. Data collected through this system includes date of installation, costs, EA5 savings estimates per measure, and the percent of each measure funded by Idaho Power. Idaho Power has very effectively used the EA5 model to spend utility money on the most cost-effective measures in each residence. Since Idaho Power can fund anywhere from zero to 100% of a measure (not to exceed 85% of the weatherization cost of a house), Idaho Power instructs its CAP agencies<sup>46</sup> to bill Idaho Power (rather than the federal funding sources) for the measures with the highest Savings to Investment (SIR) ratio, thus maximizing the cost-effectiveness of its investments. This method of strategic investments would be impossible without Idaho Power's detailed data collection and program oversight.

Rocky Mountain Power has dramatically improved relevant data collection from its CAP agencies<sup>47</sup> from the time of the 2010 Cadmus process review. The Cadmus review reported that precise analysis was difficult because Rocky Mountain Power did not collect all the necessary data from the CAP agencies. In January 2011, Rocky Mountain Power replaced its database system. The new data collection system includes measure level cost and savings estimates, and installation date rather than just invoice date. The smaller size of Rocky Mountain's low income program compared to Idaho Power and Avista's programs made investing in comprehensive data management system a slower process.

Since the workshop, Rocky Mountain has begun using a software tool that creates an Idaho-specific reference home with data from its local CAP agencies. This tool is intended to improve the pre-weatherization energy savings estimates and minimize variances between reported savings and actual savings determined through impact evaluations. Having more accurate data about the energy characteristics of local homes from the CAP agencies will help Rocky Mountain maximize the cost-effectiveness of its weatherization investments.

***Recommendation 14:*** Staff recommends that Rocky Mountain Power continue the pending and future upgrades to its low income weatherization data management system. Staff

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<sup>45</sup> Avista only has one CAP agency in its Idaho service territory.

<sup>46</sup> Idaho Power has five CAP agencies in its Idaho service territory, two of which it shares with Rocky Mountain Power (SEICAA and EICAP). In addition, CCOA provides weatherization services in Canyon County. For simplicity, references to CAPs in this report include CCOA.

<sup>47</sup> Rocky Mountain has two CAP agencies in its Idaho service territory, both of which it shares with Idaho Power (SEICAA and EICAP).

also recommends that Avista and Rocky Mountain Power consider adopting Idaho Power's scalable approach to paying for measures to allow for more strategic and cost-effective investments if Idaho Power's impact evaluation shows that this technique was effective.

### **Project-Funding Parity**

Avista's low income weatherization program has struggled with cost-effectiveness much more than the other two utility-funded programs. Staff's investigation discovered that the cause of this problem has been two-fold. First, the 2010 Cadmus process evaluation revealed that insufficient data collection about heating sources and prioritizing federal funding guidelines over utility cost-effectiveness concerns contributed to the deficiency. These implementation problems can be corrected without obtaining the Commission's specific permission. Avista has already begun working with its CAP to collect more accurate pre and post-weatherization heating source data and prioritize utility cost-effectiveness.

However, the second problem requires Commission action. Currently, Avista pays 100% of the project cost for the measures it funds in a home and in addition, pays its CAP agency a 15% administrative fee for each measure funded. Idaho Power and Rocky Mountain Power pay 85% of the project cost per home. Idaho Power pays its CAP agencies a 10% administrative fee per home, and Rocky Mountain Power pays a 15% administration fee per home. Avista's larger financial contribution in both categories significantly reduces cost-effectiveness.

Staff recognizes that the 100% funding and higher administrative fee from Avista provide more spending flexibility for its CAP agency. While Staff supports fees that promote administrative effectiveness, Staff is concerned that higher fees decrease cost-effectiveness. In the interest of preserving Avista's low income program for the long-term, Staff recommends that Avista pay 85% per project (up to 100% per measure). Cost-effectiveness will be increased by funding a smaller percentage of each project, but continuing to claim 100% of the energy savings.

Reducing the percentage per measure that Avista funds will allow Avista to fund a greater percentage of the more cost-effective measures and a smaller percentage of the less cost-effective measures. This scalable approach, already used effectively by Idaho Power, will allow Avista to fund the most cost-effective measures in a home. As previously discussed, the Staff also recommends that Rocky Mountain Power consider allocating funds on a scalable approach, depending on the cost-effectiveness of the measure, if Idaho Power's impact evaluation shows that this approach improves cost-effectiveness.

*Recommendation 15:* Staff recommends that Avista pay no more than 85% of the cost per project and up to 100% of the cost per measure. This adjustment will increase the cost-effectiveness of Avista's program and facilitate cost-effectiveness comparisons between the three utilities.

## **Funding Levels**

### **Funding Methodology**

Staff concedes that the need for low income weatherization exceeds available funding. According to the CAP agencies, utility funding for these programs is between 20% – 60% of the CAPs' weatherization funding. This percentage is likely to grow as federal funding shrinks.

How to correctly determine each utility's funding levels was a contentious point in recent cases addressing low income weatherization. CAPAI has consistently argued for "parity," which CAPAI defines as each utility funding about an equal dollar amount per residential customer.<sup>48</sup> CAPAI calculates parity by dividing the total low income weatherization program funding by the number of each utility's Idaho residential customers to arrive at a per capita funding level.

Staff and the Commission have disagreed with CAPAI's definition of "parity," where dollars per residential customer is the sole factor used to establish equivalent funding levels. CAPAI's parity methodology provides no logic for the three utilities' current funding levels. It also does not necessarily correlate to the need for low income weatherization in a utility's service territory. To address these issues, the Commission ordered that many factors besides similar per capita funding levels be considered to determine need, including employment rates, poverty rates, number of electrically heated homes, and CAP agency waiting lists in each utility's service territory.<sup>49</sup>

During the workshop, participants identified two broad options by which to create a funding methodology. The first option was to develop a funding metric by assigning dollar values to specific data points, used as proxies for need, within each service territory. The second option was to let CAPAI's state-wide LIHEAP recipient list serve as a comprehensive weatherization waiting list. Staff developed a third option during its post-workshop analysis. The three funding methodology options are discussed below.

#### **Option 1: Funding Based on Need Indicators.**

Under the first option, the funding methodology would instruct utilities to provide funding that directly corresponds to poverty rates, unemployment rates, and/or other indicators of need as prescribed by the metric. There was some discussion that several of these indicators could be combined to create a funding formula for the utilities. This methodology would allow funding to fluctuate as these indicators of need increase or decrease. While this broad approach has merit with respect to its relationship to need, utility and CAP weatherization program planning and delivery could be adversely affected by frequently changing funding levels.

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<sup>48</sup> In the recent rate cases, it was determined that Idaho Power and Rocky Mountain Power spend about \$3.06 and \$5.32 respectively per residential customer on low income weatherization. As a dual fuel utility, Avista spends about \$4.00 per residential customer on electric low income weatherization measures, or \$6.69 per residential customer on both gas and electric low income weatherization measures.

<sup>49</sup> Order No. 32426, Case No. IPC-E-11-08, page 15.

After the workshop, Staff further examined the possibility of calculating the need for weatherization services based on metrics commonly associated with low income customers (e.g., poverty rates, unemployment, etc.). Some of these data were available through the U.S. Census and American Community Surveys, but it was very difficult to tailor these data to specific utility service territories, and it was impossible to equate the need for weatherization services to any of these data. Most poverty data are available by county, but utility service territories rarely follow county lines. For example, Idaho Power and Rocky Mountain Power split Bannock County, where the large population center of Pocatello is located. Very detailed geographical poverty data would be needed to identify utility-specific data for Bannock County.

Similarly, many other municipal or cooperative electric companies such as Idaho Falls Power serve electric customers within specific counties. Low income customers served by these utilities would need to be removed from the county level poverty data to provide accurate low income customer data for investor-owned utilities.

It is also difficult to determine how heavily each of the metrics should be weighted. For example, during the workshop, participants acknowledged that poverty is not necessarily correlated to unemployment. Further, the broad poverty data available for each of the utility service territories showed relatively similar levels of poverty for each utility.<sup>50</sup> Another drawback of using a data-based metric to determine need and subsequent funding levels is that the most geographically specific data available is only generated once every five years. The American Community Survey (ACS) uses U.S. Census data collected over a five year period and weighted to be representative of the population over that period. A one year sample focuses on areas with populations greater than 65,000. Given Idaho's population density, the five year sample is the most appropriate one to use when trying to match the data to each utility's service territory.

Further, poverty statistics are based on a percentage of individuals, whereas weatherization occurs at the household level. At the household level, ACS data are available for family households and non-family households. Family households are defined as a householder living with one or more individuals related to him/her by birth, marriage, or adoption. Non-family households are defined as householders living alone or with non-relatives only. Further stratification of the household data by income level is only available for family households. Excluding non-family households is a large omission in most Idaho counties; on average, it would exclude more than one-quarter of all households.

The shortcomings of devising a data-driven metric compelled the workshop participants to return to focus on a waiting list methodology to derive need and funding levels. CAP waiting lists have previously been cited to show the need for weatherization rather than to establish funding "parity" among utilities. As determined in the Idaho Power and Rocky Mountain Power

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<sup>50</sup>Although poverty data do not align with utility service territories, it is possible to generate a broad poverty estimate for each utility by collecting poverty rates for all counties in a utility's service territory, even if the utility does not serve the entire county. Using this method, the 2009 poverty rate for Avista was 16.1%, 14.9% for Rocky Mountain Power, and 14.7% for Idaho Power.

rate cases,<sup>51</sup> the waiting lists maintained by the individual CAP agencies cannot be used as a funding tool because each CAP manages its list differently.

Option 2: Funding Based on LIHEAP Recipient List.

Under the second option, CAPAI's state-wide LIHEAP recipient list would serve as a comprehensive weatherization waiting list. The CAP agency enters LIHEAP applicants into the central database when they apply with the CAP for benefits. Weatherization candidates are almost exclusively drawn from the LIHEAP recipient list. While the LIHEAP data is not a "waiting list," it is an accurate list of each program year's LIHEAP recipients.<sup>52</sup> Further, CAPAI has access to and can combine LIHEAP data with data on homes weatherized under both federal and utility programs into a single database. For simplicity, we refer to this combined database as "LIHEAP data" or "LIHEAP lists" in this report.

CAPAI assured the workshop participants that the LIHEAP list can be sorted by utility and primary heat source, so that the waiting list, or need, for weatherization services would be accurate by fuel type for each utility's service territory.<sup>53</sup> Funding levels providing "parity" based on this data could require each utility to provide sufficient annual funding to weatherize a certain percentage of their low income customers' homes not previously weatherized as it appears on the LIHEAP recipient list.

After the workshop, Staff received and reviewed CAPAI's LIHEAP recipient lists from the last five years in an effort to construct a funding mechanism. During its review, Staff found inconsistencies in the LIHEAP data that make them unsuitable as a base for establishing a funding mechanism.

Staff's primary concern is that the LIHEAP recipient list could not be closely replicated when data for the same year was downloaded from the central database by CAPAI on two separate occasions. It was later determined that recent changes by CAPAI's information technology department skewed the data on the second data download, but this was not immediately evident. Staff believes it is inappropriate to link a funding mechanism solely to a data collection system that does not produce consistent data for historic program years.

Staff explored the possibility of corroborating the LIHEAP data with utility data to make it robust enough to support a funding mechanism. Since each utility tracks LIHEAP recipients and the homes in its service territory have participated in the low income weatherization program, Staff reasoned that each utility would have sufficient data to determine the number of electrically-heated and not-previously weatherized LIHEAP recipients in its service territory. However, utilities have no method to track homes that have been weatherized solely using federal funding. Therefore, a "waiting list" of eligible homes generated by utility data would

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<sup>51</sup> Case numbers IPC-E-11-08 and PAC-E-11-12, respectively.

<sup>52</sup> The LIHEAP program years runs from October 1 of the first year through September 30 the next year.

<sup>53</sup> This would ensure that only electrically-heated homes populate the waiting list for each utility.

incorrectly include homes previously weatherized with federal money. This would create an inflated tally of homes eligible for weatherization.

Staff also tried to corroborate CAPAI's LIHEAP data with Idaho Department of Health and Welfare (DHW) data, since DHW is the state agency that issues LIHEAP payments.<sup>54</sup> Unfortunately, DHW's LIHEAP data do not track which LIHEAP recipients have been weatherized with either utility or federal money, which means that no useful waiting list estimate can be derived from these data.

CAPAI has created a database that links LIHEAP recipient data with data on homes weatherized with utility and federal funding. Despite its shortcomings, it is the only data set that can generate a reasonable approximation of need for weatherization in each utility's service territory.

### Option 3: A Combination of Factors

Since neither of the options discussed at the workshop generated a feasible funding methodology, Staff developed a funding framework that incorporates, but does not solely rely upon, the two previous options. Staff believes that the LIHEAP recipient data shortcomings make those data unsuitable for establishing a strict funding mechanism. However, Staff believes that if multiple downloads of the LIHEAP data produce consistent findings in the future, those data may be sufficiently accurate to be included as one of several factors used to inform funding decisions.

In the absence of a stand-alone waiting list methodology, Staff recommends that a combination of factors be considered for funding decisions. Most importantly, Staff believes that in order for a utility's funding to be increased, it must be shown that the program is cost-effective. No program should receive a funding increase if it is not cost-effective according to the criteria outlined in this report. After a program is determined to be cost-effective, at least five factors should be examined to determine if a funding increase is appropriate.

1. Funding could be increased if the list of not-previously weatherized homes waiting for weatherization (as indicated by the LIHEAP data) has increased significantly since the last review.
2. Funding could be increased if a utility's program provides significantly less funding on a per-capita basis than the cost-effective program of another utility operating within the state of Idaho with comparable poverty levels in its service territory.
3. Funding could be increased if the utility is awarded a significant base rate increase. Rate increases impact low income customers more adversely than other customers, therefore it could be appropriate to provide increased funding for low income weatherization when rates increase.

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<sup>54</sup> The DWH makes LIHEAP payments to each utility for LIHEAP participants.

4. Funding could be increased if the utility does not have sufficient funds to acquire the annually achievable low income energy savings potential as indicated by the utility's most recent Conservation Potential Assessment (CPA). This criterion is similar to how utilities fund other DSM programs.
5. Funding should not be increased if a utility's CAP agencies have been unable to spend all of the available utility funding in the previous year.

While these criteria do not form a rigid funding mechanism, they do respond to the Commission's order to incorporate multiple factors into a funding methodology, provide parties with a more clear understanding of how Staff will analyze funding levels, and provide discretion to establish funding levels that are specific to each utility. This methodology will also limit the possibility of unintended consequences that a strict metric might impose, such as reduced funding amounts if the LIHEAP list of not-previously weatherized homes were to decline. Incorporating the findings of each utility's CPA will also more closely align low income weatherization funding levels with the method used to determine funding levels for other DSM programs.

Staff agrees with Rocky Mountain Power that the Commission-ordered funding amounts are not maximum amounts, and that if a program is cost-effective, each utility may fund beyond the Commission-ordered minimum. Avista exceeded its program budget in 2010 and recovered the overage through its tariff rider. Idaho Power has not exceeded the funding for its base-rate funded low income program, but has increased funding for low income customer by creating a second weatherization program funded by the tariff rider, Weatherization Solutions for Eligible Customers (WSEC), to serve customers whose income slightly exceeds the limits to qualify for its original low income weatherization program. These examples show that the Commission-ordered funding does not strictly limit funding—utilities are free to fund more cost-effective low income weatherization through their tariff riders, just as they would any other DSM program. If WAQC is determined to be cost-effective, Staff believes that Idaho Power could provide more funding for that program through the tariff rider without seeking a Commission order, even though most of that program is funded through base rates.

Idaho Power has long believed that low income weatherization funding “should be based on each utility's need for cost-effective [Low Income Weatherization Assistance] LIWA services rather than an unrelated level of parity across the different regions of Idaho.”<sup>55</sup> To develop a funding mechanism that meets this goal, Idaho Power suggested beginning with the LIHEAP recipient list “(with proven consistency of counting methodology between agencies and counting households, not individuals)”<sup>56</sup> and remove from the list all non-electrically heated homes, remove all non-Idaho Power customers, remove auditor-affirmed incorrect (self-reported) heating sources, remove auditor-affirmed households with no cost-effective weatherization

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<sup>55</sup> Case No. IPC-E-11-08, Drake Rebuttal, page 15.

<sup>56</sup> Underlining in the original.



potential, and remove previously weatherized homes. Staff agrees that if the LIHEAP data were sufficiently robust or able to be corroborated with either utility or Idaho Department of Health and Welfare data, this method would be ideal. However, the absence of accurate data compels Staff to recommend that other factors, in addition to the LIHEAP data, be considered to determine funding levels.

Rocky Mountain Power says that it is “open to discussing funding methodologies... that incorporate the economic condition of a utility’s service territory” if the program is cost-effective. Avista has stated a preference for retaining CAPAI’s per capita funding methodology.

Recommendation 16: Staff recommends that no program should receive a funding increase if it is not cost-effective according to the criteria outlined in this report. After a program is determined to be cost-effective, at least five factors should be analyzed to determine if a funding increase is appropriate.

1. Funding could be increased if the list of not-previously weatherized homes waiting for weatherization (as indicated by the LIHEAP data) has increased significantly since the last review.
2. Funding could be increased if a utility’s program provides significantly less funding on a per-capita basis than the cost-effective program of another utility operating within the state of Idaho with comparable poverty levels in its service territory.
3. Funding could be increased if the utility is awarded a significant base rate increase. Rate increases impact low income customers more adversely than other customers, therefore it could be appropriate to provide increased funding for low income weatherization when rates increase.
4. Funding could be increased if the utility does not have sufficient funds to acquire the annually achievable low income energy savings potential as indicated by the utility’s most recent Conservation Potential Assessment (CPA). This criterion is similar to how utilities fund other DSM programs.
5. Funding should not be increased if a utility’s CAP agencies have been unable to spend all of the available utility funding in the previous year.

#### **Continue Funding Low Income Weatherization Programs at Current Levels**

Staff concedes that by any measure, the need for low income weatherization exceeds current funding levels. Staff also recognizes that reductions in federal funding and a continuing poor economy further increase the demand for utilities to expand their funding commitments. But Staff uses a cost-effectiveness standard to evaluate utility DSM programs. Staff must ensure that these programs directly benefit the utility and its customers and are not viewed as public assistance. Staff cannot recommend increases in low income weatherization funding if these programs cannot reasonably be shown to be cost-effective without the addition of broadly-defined non-energy benefits.

After the adjustments to cost-effectiveness calculations and program implementation improvements recommended in this report are applied, Staff believes that all three electric low income weatherization programs will be either cost-effective or nearly cost-effective. However, it will take some time for these changes to take effect. While Staff does not recommend funding decreases until the programs are shown to be cost-effective, Staff does not recommend that funding levels for these programs increase.

Staff recommends that a possible funding increase for Idaho Power be reviewed after the results of its impact evaluation are published in spring 2013. This will allow parties to review the cost-effectiveness of Idaho Power's program when those ratios include verified energy savings, rather than the estimates generated by the EA5 software.

Staff recommends that a possible funding increase for Rocky Mountain Power be reviewed after its new data collection system is fully implemented and after the 2012 program data has been analyzed for cost-effectiveness under the recommendations in this report. Staff anticipates that both of these requirements will be met when Rocky Mountain Power publishes its annual DSM report in spring 2013.

Based on the low cost-effectiveness ratios and implementation recommendations, Staff recommends that funding review for Avista's low income weatherization program is delayed until at least 2014. Staff believes that the extra time will allow Avista and its CAP agency to implement and review program changes for impacts on cost-effectiveness, and makes sure that those improvements persist.

*Recommendation 17:* Staff recommends continued funding for Idaho Power, Avista, and Rocky Mountain Power's low income weatherization programs at current levels. Staff believes that funding increase requests for Idaho Power and Rocky Mountain Power could be considered after both companies publish their annual DSM reports in spring 2013. Staff recommends that a funding increase request for Avista be delayed until at least spring 2014 to allow time to implement the more extensive program modifications and determine if those modifications succeed and persist in improving cost-effectiveness.

### **Background and Program Summary: Low Income Energy Conservation Education Programs**

The Commission has approved funding for Low Income Energy Conservation Education (Con-Ed) Programs for all three utilities while leaving program design, implementation, and management to the discretion of the utilities and the CAPs. While the three utilities' Low Income Weatherization Programs are well-established and quite similar regarding program delivery, their low income energy Con-Ed Programs are in the early stages of development. The Con-Ed programs' shared goal is to help low income customers reduce their energy consumption or teach them how to maximize the benefits of the weatherization measures they receive.

In general, some uncertainty has surrounded the low income Con-Ed Programs. This uncertainty partly stems from the Con-Ed programs' historical pairing with low income

weatherization programs. The Commission has granted funding for Con-Ed programs without explicitly designating how the funds should be spent or indicating the appropriate level of utility oversight. After receiving funding, the utilities, CAPAI and the CAPs developed plans on how to spend the funds allocated. Staff believes funding was provided to allow for experimentation with program design and delivery.

CAPAI will evaluate Rocky Mountain Power's Con-Ed Program for 2011 and 2012, with a report due by June 2013. Staff believes that an independent, third-party evaluation of all three utilities' programs may be needed in the future. Staff continues to have some concerns about the efficacy of these programs as currently designed, and looks forward to reviewing CAPAI's analysis of Rocky Mountain Power's Con-Ed program.

In Staff's opinion, Con-Ed Programs are separate, stand-alone programs. Con-Ed Program delivery and strategy does not duplicate weatherization services, so delivery and strategy of the two programs are unlikely to align; they should, however, be complementary. Staff has several expectations for these programs. As funders, utilities should be involved in the design, delivery, and oversight of the programs. Each program should benefit low income customers in Idaho and have clearly defined target audiences and goals. Program budgets should reflect how utility funding will be used.

Treating the low income weatherization and Con-Ed Programs as separate programs also makes sense from the standpoint of determining cost-effectiveness. As is the case for other education programs in which energy savings are very difficult to determine, standard cost-effectiveness tests are meaningless when applied to Con-Ed programs. Moreover, the cost-effectiveness of a weatherization program is reduced when the cost of a Con-Ed Program is included because there is often no corresponding verifiable benefit in terms of energy savings. At current funding levels, the impact on cost-effectiveness is quite small; however, if funding amounts grow, the negative impact will become more significant.

Idaho Power's Con-Ed Program has the largest budget (\$125,000 annually) and has been in place the longest of the three utilities' Con-Ed programs. Designed in 2009, the program funds distribution of energy efficiency kits and in-house workshops run by Community Education Specialists in each of the five CAP agencies located in Idaho Power's service territory. The program targets Idaho Power customers who heat their homes electrically, receive LIHEAP benefits, and are not on the weatherization assistance priority list.<sup>57</sup> The CAP agencies provide participants with kits and information about energy efficiency and behavioral steps that can be taken to reduce residential energy usage.

Energy efficiency kits include CFLs, low-flow showerheads, and other low cost, easily-installed measures.<sup>58</sup> In 2010, the CAP agencies distributed all 2,594 kits purchased by Idaho

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<sup>57</sup> Individuals over 60 years old, families with children under 6 years old, and persons with disabilities are prioritized for weatherization services. Idaho Power's Low Income Energy Conservation Program targets customers who do not meet these criteria and therefore are less likely to receive weatherization assistance.

<sup>58</sup> Each kit cost about \$40 and contains two compact fluorescent bulbs, rope caulk, set of "draft stopper" outlet gaskets, 1.5 GMP kitchen aerator with flip, Oxygenic low flow shower head, digital thermometer, LED Nightlight,

Power, but in 2011 the CAP agencies distributed only 1,460 of the 2,127 kits that were purchased. Due to the difficulty in getting low income customers to attend educational workshops, most customers now receive a kit during the LIHEAP intake interview and are provided with one-on-one energy Con-Ed counseling. Of Idaho Power's \$125,000 annual program funding amount, 30% is allocated for delivering the program and 70% is used to buy kits.

Avista's \$50,000 annual budget for its low income Con-Ed Program funds low income outreach and energy conservation education activities by the CAP agency serving northern Idaho and eastern Washington.<sup>59</sup> In 2010, the Lewiston-based Community Action Partnership created a full-time Home Energy Conservation Educator position. The Educator meets with program participants at agency offices or during one-on-one home visits, conducts in-house agency workshops, and attends community or Avista-sponsored events. Participants are informed about energy efficiency and behavioral steps that can be taken to reduce residential energy usage. In general, participants either receive LIHEAP benefits or are presumed to be low income, but attendance at workshops and events is not restricted to customers of Avista. A pilot program targeting Avista's Washington and Idaho low income customers began in May 2011. Through mid-April 2012, 21 Idaho households had participated in one-on-one home visits conducted simultaneously with weatherization energy audits. Of the \$40,000 paid by Avista in 2011, 70% was allocated for the payment of the Home Energy Conservation Educator's salary and fringe benefits, 15% for office space, 9% for travel, and 6% for administrative costs.

Rocky Mountain Power gave \$50,000 to the two CAP agencies in its service territory to develop an energy conservation program specifically targeted to Rocky Mountain Power's low income customers. The resulting program is like Idaho Power's program (i.e., the program provides in-house workshops and distributes energy efficiency kits), but it also includes one-on-one home visits. The goal is to provide in-house workshops to 500 Rocky Mountain Power customers who have electric space heating and receive LIHEAP benefits, but who have not received weatherization assistance. Each workshop participant receives a kit that contains low-cost energy saving items to install in his/her home including information about energy efficiency and behavioral steps that can be taken to reduce residential energy usage.<sup>60</sup>

After a long delay, Rocky Mountain Power's Con-Ed Program was implemented in June 2011 with the goal of serving 500 households.<sup>61</sup> By the end of 2011, 168 households had received energy Con-Ed and an energy efficiency kit. To increase workshop participation, the CAPs expanded the Con-Ed Program to include Rocky Mountain Power customers with gas

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installation guide with energy savings information, set of sticker/magnets, CFL informational brochures with mercury safety information, and educational and cross-marketing literature.

<sup>59</sup> Energy service providers within the CAP service area in Idaho include co-ops, municipalities, and Avista. Based upon historical data, Avista serves about 75% of the area's customers.

<sup>60</sup> Each kit costs about \$15 and contains three Energy Star compact fluorescent bulbs, a refrigerator temperature card, a kitchen sink aerator, a package of 10 outlet sealers, and a luminescent night light.

<sup>61</sup> In April 2009, the Commission approved \$50,000 in Con-Ed program funding in Case No. PAC-E-08-07, Order No. 30783.

space heating. As of July 1, 2012, 252 households (51% of the goal) had completed the program.

Of the \$50,000 allocated for the program, 15% was used to buy 500 kits and 85% went to program delivery. Rocky Mountain Power says its \$50,000 budget was a one-time amount, whereas Staff and CAPAI maintain that it is an annual budget. The issue remains unresolved. Staff doubts the Commission intended for one utility to provide one-time funding while the other two utilities fund annually. While CAPAI and the CAP agencies have had problems setting up the Con-Ed program and spending the original funding allocation, Staff supports annual funding. Rocky Mountain Power told Staff that it is willing to provide funding on an annual basis but that the funding amount should be changed.

Because these programs are still evolving, the utilities, CAP agencies, and CAPAI agreed during the workshop that there is no need to increase annual funding levels for any of the utilities' Con-Ed programs now. Rocky Mountain Power believes that its funding amount should be decreased to better match the other two utilities on a per residential customer basis.<sup>62</sup> Staff recognizes that it has taken Rocky Mountain Power's CAPs more than two years to spend the Con-Ed funding amount. This suggests that \$50,000 is an excessive annual funding amount.<sup>63</sup> Further, Rocky Mountain Power's funding level is the same as Avista's even though Rocky Mountain Power has about half as many electric residential customers. Staff concludes that Rocky Mountain Power's funding amount is too large, and should be reduced to \$25,000 *annually*, which is about \$0.44 per residential customer.

Table 5: Current Conservation Education Funding

Category	Idaho Power	Avista	Rocky Mountain
Funding Level	\$125,000	\$50,000	\$50,000
Number of Electric Residential Customers	391,759	104,609 <sup>64</sup>	57,187
Funding per Customer	\$0.32	\$0.48	\$0.87

Table 6: Staff's Proposed Conservation Education Funding

Category	Idaho Power	Avista	Rocky Mountain
Funding Level	\$125,000	\$50,000	\$25,000
Number of Electric Residential Customers	391,759	104,609	57,187
Funding per Customer	\$0.32	\$0.48	\$0.44

<sup>62</sup> In its calculation, Rocky Mountain Power used slightly higher customer number for Idaho Power than Staff used. The lower customer count increased Idaho Power's funding per customer from \$0.03 to \$0.32.

<sup>63</sup> Rocky Mountain Power's Con-Ed program spent \$7,500 in 2010 and \$42,500 in 2011. The 2011 expenditure allowed the CAPs to stockpile kits.

<sup>64</sup> In Order No. 32650, the Commission granted Avista's request to suspend their natural gas DSM portfolio. Therefore, Avista's Con-Ed program should be based on their electric residential customer count. Using only Avista's electric residential customer count increases its per-customer funding amount from \$0.30 (based on both electric and gas customer count) to \$0.48.

Staff recommends that the Commission make a determination that \$25,000 program funding be provided on an annual basis. Staff recommends that the Commission order be effective no sooner than June 2013. Staff anticipates that the CAPs will be able to serve Rocky Mountain Power customers through the 2012-2013 heating season with the large, existing stockpile of energy efficiency kits.

Recommendation 18: Staff recommends that utilities' annual DSM reports separately address their Low Income Energy Conservation Education Programs. At a minimum, Staff expects each report to describe program design, identify target audience(s), gauge the program's success in meeting its goals, indicate how utility funding was used, and describe how the program benefits the utility's customers. As with other education programs in which energy savings are often very difficult to determine, the Con-Ed programs should not be subjected to standard cost-effectiveness tests like the TRC and UCT. Staff recommends maintaining the current annual Con-Ed program funding level for Avista and Idaho Power. Staff recommends that the Commission adjust Rocky Mountain Power's funding to \$25,000 beginning in June 2013 with the clear understanding that this amount should be funded annually.

#### **Low Income Weatherization and Energy Conservation Education Programs Conclusion**

Staff believes that current cost-effectiveness methodologies should be changed as recommended in this report to more accurately measure the value of low income weatherization programs. While all three utilities' programs in Idaho face challenges, Staff's analysis suggests that all of the programs can be a cost-effective DSM resource for ratepayers over the medium to long-term. While Staff cannot support an increase in low income weatherization funding immediately, Staff believes that current funding levels for all three utilities are sufficient to continue program activities while cost-effectiveness is being examined in more detail. Therefore, Staff recommends that funding levels for all weatherization programs remain unchanged until at least spring 2013 for Idaho Power and Rocky Mountain Power, and 2014 for Avista.

The Low Income Energy Conservation Education Programs are still in the early stages of development and Staff anticipates further refinements will be made to each program. Although Staff believes the Con-Ed programs are separate, stand-alone programs to which standard cost-effectiveness test do not apply, program success must still be measured and customer benefits identified. Staff recommends maintaining the current annual Con-Ed program funding level for Avista and Idaho Power, and adjusting Rocky Mountain Power's funding to \$25,000 annually.

## **Appendix 1: Low Income Workshop Agenda**

### **Idaho Public Utilities Commission Workshop on Low Income Weatherization and Energy Conservation Education Programs funded by Avista, Idaho Power, and Rocky Mountain Power**

**Workshop Goal:** “The purpose of the workshop is for the utilities, interested persons, and Commission Staff to explore in greater detail issues related to the funding, implementation, and evaluation of utility low-income weatherization and energy conservation education programs. Following the workshop, Commission Staff shall prepare and submit a report of its findings and recommendations.”

*Notice of Public Workshop, Case No. GNR-E-12-01*

**Location:** Hearing Room, Idaho PUC, 472 W. Washington Street, Boise, Idaho

**Dates:** March 19 & 20, 2012

**Monday, March 19, 2012**

**10 AM – 4:30 PM**

#### **10:00 – 10:30 AM - Workshop Overview**

- Welcome & workshop logistics
- Introductions
- Workshop goal & agenda

#### **10:30 AM – 1:00 PM – Program cost-effectiveness & evaluation**

- Review Total Resource Cost Test (TRC) and Utility Cost Test (UCT)
- Review Savings to Investment Ratio (SIR)
- Explanation of avoided costs
- Summary of current programs’ cost-effectiveness
- Explore major differences among utilities’ TRC/UCT calculations
  - Energy savings estimates  
EA4/5 audit, deemed savings, and billing analysis
  - Net to Gross Factor  
Appropriate percentage to claim
  - Percentage of cost paid by utility for each measure  
Fixed or variable percentage per measure
  - Utility’s internal administration costs  
What is included and not included

- Third-party program evaluation costs
  - Included in single year CE or amortized over several years
  - Included at program or portfolio level
- Energy Conservation “Adder”
  - 10% added to avoided cost
  - 10% added to TRC
- Non-Energy Benefits
  - Health and Safety measures as NEBs
  - Reduction in arrearages
  - Reduction in bad debt
  - Reduction in disconnection expenses
  - NEBs not easily quantified
  - Others
- Creating a Low Income TRC
- Evaluation Methods
  - Alternatives or complements to billing analysis
  - Billing analysis methodology
    - Control for rate increases and economic fluctuations
    - Control for savings attributed to service disconnections
    - Control for previously weatherized homes
    - Other possible improvements
  - Measure life benefits for reduction in arrearages

**1:00 – 2:30 PM - Break for lunch (on your own)**

**2:30 – 3:30 PM - Wrap up discussion on cost-effectiveness (if necessary)**

**3:30 – 4:30 PM - Program implementation**

- Fixed annual funding (use it or lose it) or roll-over of unspent funds
- Approved measures: per project or per program
- Capture of project-level data to enable evaluation & program management

**Tuesday, March 20, 2012**

**9:00 AM – 4:30 PM**

**9:00 – 11:00 AM - Determination of need for & appropriate funding level for Low-Income Weatherization Programs**

- Determining need
  - Number of low-income customers in service territory/poverty rates



- Number of low income homes needing weatherization
- Number of electrically-heated low-income homes
- Number of customers on CAPs' waiting lists
- "Parity" based on number of customers served by each utility
- Other factors
- Possible metrics for determining program funding level

***LOW INCOME ENERGY CONSERVATION EDUCATION PROGRAM***

**11:00 AM – 12:00 PM – Program overview**

- Staff summary of program status
- Stand-alone program - not part of Low Income Weatherization Program and not subject to standard cost-effectiveness tests (TRC & UTC)
- Determining need – what sets it apart from utilities' energy efficiency/energy conservation efforts targeted to other customers or specific constituencies (schools, seniors, etc.)

**12:00 PM – 1:00 PM – Break for lunch (on your own)**

**1:00 PM – 3:30 PM – Program design/funding/evaluation**

- Program design
  - Curriculum
  - Distribution of products & educational materials
  - Client selection (who gets what)
- Similarity among CAPs
- Evaluation methods
- Program funding level
- Allocation of funding among CAPs

***NEXT STEPS***

**3:30 – 4:30 PM – Determination of next steps**

- Following the workshop, Staff will prepare and file a report providing Staff's findings & recommendations to the Commission.
- Any areas of general agreement among workshop participants will be noted in the report.
- The report will include recommendations on whether further proceedings and/or hearings are necessary.
- After submission of Staff's report, participants and other interested parties will have an opportunity to file comments with the Commission.

**Appendix 2: Utility Low Income Matrices**

**Idaho Utility Funded Low Income Weatherization Program Overview**

<b>Program Year 2010 (unless otherwise noted)</b>	<b>Idaho Power</b>	<b>Avista Electric</b>	<b>Avista Gas</b>	<b>Rocky Mountain</b>
<b>2010 Ordered Funding</b>	\$1.2 million	\$ 465,000 total	\$465,000 total	\$150,000
<b>2010 Program Expenditures</b>	\$1,207,705	\$308,042	\$210,924	\$133,673
<b>Annual Funding Rollover</b>	Yes	No	No	No
<b>2011 Ordered Funding</b>	\$1.2 million	\$700,000 total	\$700, 000 total	\$300,000
<b>Funding Source</b>	Base rates	Tariff rider	Tariff rider	Tariff rider
<b>Eligible Heat Source</b>	Electric only	Electric	Gas	Shell measures only for electric
<b># of Residential Customers in Idaho</b>	394,132	105,286	77,137	56,430
<b>CAP agencies</b>	CCOA, El-Ada, SCCAP, SEICAA, EICAP, WICAP	CAP	CAP	EICAP, SEICAA

**Idaho Utility Funded Low Income Weatherization Cost-Effectiveness Calculations**

<b>Program Year 2010 (unless otherwise noted)</b>	<b>Idaho Power</b>	<b>Avista Electric</b>	<b>Avista Gas</b>	<b>Rocky Mountain</b>
<b>TRC</b>	1.66	.66	.18	.70
<b>UCT</b>	3.27	.66	.18	.70
<b>CE based on verified energy savings</b>	No	Yes	Yes	Yes
<b>Energy Savings Estimates</b>	EA4 Energy Audit estimate	EA4 adjusted for billing analysis from Cadmus impact evaluation	EA4 adjusted for billing analysis from Cadmus impact evaluation	Billing analysis from '06 Cadmus evaluation
<b>% Savings Claimed per Home</b>	Equal to proportion of funding per measure (up to 100%), up to 85% per home	100%	100%	100%
<b>Net to Gross</b>	80%	100%	100%	100%
<b>% Admin to CAPs</b>	10% of company funded amount per home	15% of company funded amount per home	15% of company funded amount per home	15% of company funded amount per home
<b>% Health and Safety Measures to CAPs</b>	15% of annual total project cost funded by company	15% of company funded amount per home	15% of company funded amount per home	15% of annual total project cost funded by company
<b>Conservation Adder</b>	None	10% added to avoided cost	10% added to avoided cost	In 2011 PTRC, 10% added to TRC
<b>Non-Energy Benefits</b>	None included	\$1 invested for health and safety is \$1 NEB	\$1 invested for health and safety is \$1 NEB	Only in 2011
<b>Evaluation costs incorporated for CE at program or portfolio level</b>	Program level in the evaluation year	System level, then allocations are applied for states and sector	System level, then allocations are applied for states and sector	Program level in evaluation year. May move to sector or portfolio level.

**Idaho Utility Funded Low Income Weatherization Program Implementation**

<b>Program Year 2010</b>	<b>Idaho Power</b>	<b>Avista Electric</b>	<b>Avista Gas</b>	<b>Rocky Mountain</b>
<b>EA4 tool used to have utility fund measures with highest SIR</b>	Yes	No	No	No
<b>2010 % of Measures Funded</b>	85% per house. Varies from 0-100% by measure based on SIR	Up to 100% of each measure	Up to 100% of each measure	75% of each measure
<b>2011 % of Measures Funded</b>	85% per house. Varies from 0-100% by measure based on SIR	Up to 100% of each measure	Up to 100% of each measure	85% of each measure
<b>Measure Approval</b>	By home using EA4	Pre-approved list	Pre-approved list	By home using EA4
<b>Evaluation Method</b>	TBD in 2012	Billing analysis	Billing analysis	Billing analysis
<b>DOE/CAP Audits (QA Inspections)</b>	Yes, but only 1 electrically heated home audited.	Yes, occasionally.	Yes, occasionally.	Yes, RMP goes once a year. No problems getting electrically heated homes.

**Low Income Energy Conservation Education Funding**

<b>Program Year</b>	<b>Idaho Power</b>	<b>Avista Electric</b>	<b>Avista Gas</b>	<b>Rocky Mountain</b>
<b>2010</b>	\$125,000 annually	\$40,000 total, annually	Included in electric amount	\$50,000 annually/one-time is unresolved
<b>2011</b>	\$125,000 annually	\$50,000 total annually (October 2011)	Included in electric amount	\$50,000 annually/one-time is unresolved

## **Appendix 3: Non-Energy Benefits**

### Utility and Ratepayer Benefits

- Reduction in cost of collection for past due bills
  - Fewer utility disconnections and reconnections
  - Reduced utility bill arrearages
  - Reduced cost of premise visits, handling payment arrangements and late payments, etc.
  - Fewer notices and collection calls
  - Reduced need for special handling of bill payment assistance, e.g., LIHEAP
- Reduction in utility bad debt

### Benefit to Weatherization Recipient/Property Owner

- Improved ability to pay bills due to lower energy costs
  - Fewer utility disconnections
  - Decreased utility bill arrearages
  - Reduced need for bill payment assistance, e.g., LIHEAP
  - Frees up household income for other needs
- Improved health and safety
  - Fewer illnesses in household
  - Reduction of chronic health problems, e.g., asthma
  - Eliminates need to use unsafe alternative heating and lighting equipment due to disconnection of utility service or equipment malfunction or failure, resulting in fewer fires
- Improved comfort of occupants due to increased energy efficiency and equipment repair/replacement
- Increased capital value/resale value of house
- Insurance
  - Lower rates
  - Improved ability to obtain insurance
- Tax benefits
  - Credits from State or Federal government for energy efficiency investments; most likely to accrue to property owners who financially contribute towards cost of weatherization
- Reduction in mobility
  - Ability to stay in home due to decreased energy use and improved infrastructure

- Equipment
  - Longer life/delayed need to replace
  - More reliability
  - Less maintenance and repair

#### Societal Benefits

- Increased awareness of how to conserve energy and use energy more efficiently
- Increased stability of families due to reduction in mobility
- Ability to stay in home due to decreased energy use and improved infrastructure
- Improved public health and safety
  - Fewer illnesses and chronic health problems originating in low income homes
  - Reduced transmission of disease
  - Fewer fires due to use of unsafe alternative heating or lighting equipment
- Reduced need for bill payment assistance increases availability of funds for others
- Preservation of low income housing by making structural repairs

#### Economic Benefits

- Income generated from employment in weatherization services industry
- Federal taxes generated from employment
- Avoided cost of unemployment benefits

#### Other

- Environmental concerns
  - Reduction in CO2 and other pollutants – included in conservation adder
  - Fish and wildlife mitigation
  - Reduced usage of water and sewer
- Reduced transmission and distribution line losses – included in avoided cost
- National security enhanced by reduced reliance on foreign oil and increased reliance on domestic fuels and conservation

#### Appendix 4: List of Low Income Workshop Participants

<u>NAME</u>	<u>Organization</u>	<u>E-MAIL</u>
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