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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.

