The TRC and Low Income

Low-Income Subcommittee, NV Energy DSM Collaborative, May 2012
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This paper is a report on how low income weatherization is cost tested (screened for the relation of cost and benefit) in 11 selected states that treat the Total Resource Cost (TRC) test as the primary test for screening Demand Side Management (DSM) programs.[1] The states listed as relying primarily on the TRC are: California, Colorado, Delaware, Illinois, Massachusetts, Missouri, New Hampshire, New Jersey, New Mexico, Rhode Island and Utah. Delaware is currently developing a new statute on cost effectiveness; so this report covers the remaining 10 states. The reason for looking at these states is to see how states that favor the TRC treat initial screening of low income programs and assessment of cost benefit results. Where possible, an electronic reference or a contact is included.

Summary of Results

The assumption that the states that use the TRC test as primary would be likely to use the standard (California Practice Manual) TRC test for low income turns out not to be correct. Four of the ten states that favor the TRC test as the primary screening test for DSM do not use the TRC test for low income programs. The others use the TRC test to screen low income programs, but each in an individually modified form.

Results are summarized in Table 1.

Of the states that do not use the TRC for low income programs, California has an elaborate alternative quantitative test, using the Utility Cost Test and a modified Participant Cost test. Certain individual measures [furnace repair and replacement, water heater repair and replacement, and (in hot climates) air conditioner and swamp cooler repair and replacement] are included in the low income program and are exempt from cost testing. In addition, utilities are directed to participate in coordinated programs that include federal funding. Illinois exempts low income programs from cost

[1] According to a presentation by staff from Lawrence Berkeley Laboratory to a workshop of the Ohio Public Utilities Commission in 2010, there are eleven states that use the Total Resource Cost (TRC) test as the primary test for DSM programs. Sedano, Richard and Snuller Price, "Total Resource Cost (TRC) Test and Avoided Costs," presentation to the Public Utilities Commission of Ohio Workshop Wednesday, August 5, 2009. Berkeley, California: Lawrence Berkeley National Laboratory, Environmental Energy Technologies Division, Electricity Markets and Policy Group, Slide 16. See: http://www.puco.ohio.gov/emplibrary/files/util/EnergyEnvironment/09-512/TRCWorkshopPresentations.pdf.

testing and requires expenditure proportional to the percentage of utility revenues collected from low income customers. Missouri exempts low income programs from cost testing. Utah requires a fixed assessment from two major utilities to support low income programs and exempts the programs from cost testing.

Table 1: Summary of Results.

Variations on Low Income DSM Weatherization Program Cost Screening									
State	Explicitly includes Enviornmental NEBS?	Certain Measures Approved w/o Cost Test	Coordinated Programs Explicity Encouraged	Explicitly Adds Benefits for Serving Low Income Customers	Explicit Low Income Benefit Multiplier	Explicit "No Harm" to Utility for BC Ratio LT 1.00	Explicitly Excludes all Gov't Cost Share from Cost	Informal Leniency	Low Income Spending % set equal to Low Income Revenue Share
Uses a Version of the Total Resource Cost Test									
CO				Yes	1.25	Yes			
MA	Yes		Yes	Yes					
NH			Yes					Yes	
NJ	Yes		Yes					Yes	
NM				Yes	1.25				
RI	Yes								
Does not use the Total Resource Cost Test									
CA	Yes	Yes	Yes						
IL									Yes
MO							Yes		
UT									

The states that require TRC screening are not using the standard TRC test. Each has adjusted the calculation in one or more ways. Colorado adds to energy benefit the benefits associated with serving low income customers. This is simulated through a multiplier of 1.25 times the energy benefit. Colorado also specifies a "no harm" provision so that a low income program that proves not to be cost effective is dropped from the DSM portfolio performance results. Massachusetts explicitly adds many environmental benefits and benefits from serving low income customers. It also directs utilities toward coordinated programs that incorporate government support along with utility contribution. New Jersey similarly adds environmental benefits and requires coordinated programs. Also, low income programs are consistently approved though they are not expected to achieve a benefit cost ratio 1.00 or greater. New Mexico uses the multiplier of 1.25 times the energy benefit, as used in Colorado as a way of taking into account the additional benefits associated with serving low income customers. Rhode Island takes environmental benefits into account.

California

Although California relies on the Total Resource Cost (TRC) test for DSM programs, since at least 2001 the commission has treated low income programs separately. In 2001, California used the Low Income Public Purpose (LIPPT) to assess the cost effectiveness of low income programs. Since then, the test for low income programs has moved away from the TRC and LIPPT.

Currently the two tests applied to low income weatherization are the Utility Cost Test (UCT) and the modified Participant Cost (PCm) test, rather than the TRC. These tests both incorporate non-energy benefits and are related to the social goal of providing equitable DSM treatment to the portion of the California housing stock in which low income customers reside. The 2001 California Standard Practice Manual notes that the cost test for low income weatherization is located outside the manual:

The appropriate choice of inputs and input components vary by program area and project. For instance, low income programs are evaluated using a broader set of non-energy benefits that have not been provided in detail in this manual. Implementing agencies traditionally have had the discretion to use or to not use these inputs and/or benefits on a project- or program-specific basis. The policy rules that specify the contexts in which it is appropriate to use the externalities, their components, and tests mentioned in this manual are an integral part of any cost-effectiveness evaluation. These policy rules are not a part of this manual. Policy Rules [California Standard Practice Manual, 2001, P. 7]

Non-energy benefits for low income programs: The low income programs are social programs which have a separate list of benefits included in what is known as the 'low income public purpose test'. This test and the specific benefits associated with this test are outside the scope of this manual. Total Resource Cost Test [California Standard Practice Manual, 2001, P. 21]

California Public Utility Commission, California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects, October 2001. See: http://www.energy.ca.gov/greenbuilding/documents/background/07-J_CPUC_STANDARD_PRACTICE_MANUAL.PDF.

Current statements on cost testing and on coordinated programs (leveraging) follow:

Findings of Fact [Commission Decision on Low Income 11-2009]

34. The UCT and PCm Tests incorporate Non Energy Benefits as well as direct energy related benefits.

68. "Leveraging" is an IOU's effort to coordinate its LIEE programs with programs outside the IOU that serve low income customers, including programs offered by the public, private, non-profit or for-profit, local, state, and federal government sectors that result in energy efficiency measure installations in low income households.

69. The most obvious LIEE leveraging opportunity is the federal LIHEAP program.

70. The IOUs' current LIEE programs do not adequately leverage with LIHEAP. Part of the reason for this is the unavailability of a LIHEAP database.

Findings of Fact [Commission Decision on Low Income 11-2009]

It is Ordered That:

17. We adopt the following methodology, as of January 1, 2009, for determining whether specific measures are cost effective (taking into account the housing type as well as climate zone) and set forth an approach to screening all measures going forward:

a. Measures that have both a PCm and a UCT benefit-cost ratio greater than or equal to 0.25 (taking into consideration the housing type and climate zone for that measure) for that utility shall be included in the LIEE program. This rule applies for both existing and new measures.

b. Existing measures that have either a PCm or a UCT benefit-cost ratio less than 0.25 shall be retained in the program.

c. Existing and new measures with both PCm and UCT test results less than 0.25 for that utility may be included in the LIEE program for all climate zones if they consist of furnace repair and replacement or water heater repair and replacement. Air conditioning and evaporative cooling measures may be included in the LIEE program in hot climates (in accordance with the measure guidelines of the 2007-08 LIEE program, which disallowed cooling measures in temperate climate zones), subject to new reporting requirements. Heating and water heating measures in landlord-owned property may not be installed with LIEE funds, as landlords' legal habitability obligations require them to pay for such amenities.

59. IOUs shall use the following three criteria to measure the level of success of each of their leveraging efforts and partnerships:
(i) Leveraging results in dollars saved;
(ii) The opportunity results in energy savings/benefits; and
(iii) The opportunity results in enrollment increases.

60. The IOUs shall report the extent to which their LIEE leveraging efforts meet the foregoing metrics in their annual reports provided each May to the Commission. In cases where the leveraging effort or relationship does not meet a criterion, the IOU shall provide a reasonable explanation. We direct Energy Division to review the reports and work with IOUs to enhance leveraging during the 2009-11 cycle if our metrics are not met.

63. Our goal is full LIHEAP and LIEE leveraging, as well as ensuring that LIHEAP and LIEE measure installation happen at the same time, or sequentially, as part of the Whole Neighborhood Approach. The IOUs shall assist in working with DCSD and the Commission to develop a database that will allow IOUs and their contractors to determine if a home has already received LIHEAP service, and the measures installed. They shall also use all means currently available to determine such service by LIHEAP.

Commission Decision on Low Income 11-2009

Source: DECISION ON LARGE INVESTOR-OWNED UTILITIES' 2009-11 LOW INCOME ENERGY EFFICIENCY (LIEE) AND CALIFORNIA ALTERNATE RATES FOR ENERGY (CARE) APPLICATIONS. See: http://docs.cpuc.ca.gov/published/AGENDA_DECISION/93393.htm#P1659_326178.

[Note: PCm is a modified Participant Cost test in which participant benefits are divided by utility costs.]

California continued:

1. Cost Effectiveness (CE)Testing

Overview of Cost Effective Methodology adopted for the 2012-2014 low income programs

Consistent with the policies articulated in Decision (D.) 01-12-020 and (D.) 08-11-031, the adopted methodology considers the CE of the ESAP program and measures from two perspectives: cost efficiency from the perspective of the non-participant, and hardship reductions from the perspective of the participant. The following two cost-effectiveness tests are applied and presented in the form of a benefit-cost ratio.

Methodology Adopted in 2009 (D.08-11-031)

All measures must meet the below thresholds in order to be included in the program. However, some measures that did not meet the cost effectiveness threshold were allowed back in the program for purposes of customer health, comfort and safety, such as certain heating and cooling measures.

1. Measures that have both a PCm and a UCT benefit-cost ratio greater than or equal to 0.25 for that utility shall be included in the LIEE program. This rule applies for both existing and new measures.
2. Existing measures that have either a PCm or a UCT benefit-cost ratio less than 0.25 shall be retained in the program.
3. Existing and new measures with both PCm and UCT test results less than 0.25 for that utility may be included in the LIEE program for all climate zones if they consist of furnace repair and replacement or water heater repair and replacement. Air conditioning and evaporative cooling measures may be included in the LIEE program in hot climates, subject to new reporting requirements. Heating and water heating measures in landlord-owned property may not be installed with LIEE funds, as landlords' legal habitability obligations require them to pay for such amenities.

Definitions

1. **Utility Cost test (UCT)** – Calculates, from the point of view of the utility, the ratio of benefits to participating ratepayers, (bill savings and non-energy related benefits such as improved comfort) to the total program costs

   UCT = (Energy Benefits + Utility Non-Energy Benefits)/ Utility Costs

   - **Energy Benefits**- NPV of avoided costs
   - **Utility Non-Energy Benefits**- NPV of all program related non-energy benefits
   - **Utility Costs –**NPV of all program related costs

2. **Modified Participant Cost Test (PCm,) or (MPC)-** Assesses measures from the perspective of ESAP participants and calculates the ratio of resource benefits to the total program costs

   (PCm,) or (MPC)= (Bill Savings + Participant Non-Energy Benefits)/ Program Costs

   - **Bill Savings-** Average Utility rates are used instead of Avoided Costs
   - **Participant Non-Energy Benefits**- NPV of all program related non-energy benefits
   - **Program Costs** - NPV of all program related costs

3. **Non Energy Benefits (NEBs)-** Non-Energy benefits are meant to capture a variety of effects which are not captured by energy savings estimates but are thought to exist as a result of measure installation.
    - Utility NEBs include:
        - Reduced Carrying Cost on Arrearages
        - Lower Bad Debt
        - Fewer shutoffs and fewer reconnects
        - Fewer notices and customer calls
        - Lower collection costs
        - Reduced gas emergency calls
        - Health and safety savings
        - Reduced transmission and distribution costs
    - Participant NEBs include:
        - Reduced water waste water
        - Shutoffs from the participant's perspective & reduced reconnects
        - Reduced utility call
        - Property value benefits
        - Health and safety (fire losses, avoided moving costs, reduced participant illness, comfort and hardship

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Source: **Ava N. Tran,** Senior Regulatory Analyst, Low Income Energy Efficiency Program
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Colorado

For electric DSM programs, Colorado uses the TRC test for all programs including low income weatherization. However, if on a planning (*ex ante*) TRC test of a low income weatherization program the value of the benefit cost ratio is less than one, the utility is directed to recalculate the TRC for that program using a multiplier of 1.25 for planning purposes (but this factor is not applied *ex post*). This is to take into account non-utility benefits plus additional benefits to providing DSM to low income customers.

After a program cycle has been completed, if the evaluation shows results that lead to an *ex post* benefit cost ratio of less than one (without considering the planning adder/multiplier), then both the costs and the benefits of the program are to be excluded from the overall portfolio. The intent of the Commission is to insure that the utility DSM plan performance is not hurt for running a low income program when it is not cost effective. If the *ex post* benefit cost ratio is one or larger (without considering the planning adder/multiplier) the costs and benefits are included in the overall DSM portfolio results. A low income program is not permitted to hurt the utility's performance on the plan, but it can help it.

136. Given the absence of opposition to the Company's proposal to increase the non-energy benefit adder to 25 percent for low-income programs, we grant Public Service's request for the purpose of program screening for cost-effectiveness. Consistent with Decision No. C08-0560, the inclusion of non-energy benefits shall not be allowed when determining net economic benefits for the purpose of determining financial incentives. Decision No. C08-0560, at 26. However, in cases where the net economic benefits associated with a low-income program is negative without the consideration of the non-energy benefits, the costs and benefits of this program shall be excluded from the calculation of overall net economic benefits. Decision No. C08-0560, at 44.

Source: Decision No. C11-0442, BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO, DOCKET NO. 10A-554EG, IN THE MATTER OF THE APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO FOR APPROVAL OF A NUMBER OF STRATEGIC ISSUES RELATING TO ITS DSM PLAN, INCLUDING LONG-TERM ELECTRIC ENERGY SAVINGS GOALS, AND INCENTIVES. ORDER GRANTING APPLICATION WITH MODIFICATIONS, Adopted Date: March 30, 2011.

As explained by Paul Caldera, Commission Staff (303) 894-2025.

Delaware

Delaware is currently getting ready to launch DSM programs and is revising its statute on cost testing. The Delaware approach should be issued within the coming year. Non energy benefits for low income are under consideration. The Delaware approach should be issued within the coming year.

As explained by Bahareh Vanboekhold, Commission Staff Bahareh.vanboekhold@state.de.us

Illinois

Illinois exempts low income programs from the TRC:

As used in this Section, "cost-effective" means that the measures satisfy the total resource cost test. The low-income measures described in subsection (f)(4) of this Section shall not be required to meet the total resource cost test.

Source: Illinois complied statutes, (220 ILCS 5/8-103), Sec. 8-103. Energy efficiency and demand-response measures.

....

(f) No later than November 15, 2007, each electric utility shall file an energy efficiency and demand-response plan with the Commission to meet the energy efficiency and demand-response standards for 2008 through 2010. No later than October 1, 2010, each electric utility shall file an energy efficiency and demand-response plan with the Commission to meet the energy efficiency and demand-response standards for 2011 through 2013. Every 3 years thereafter, each electric utility shall file, no later than September 1, an energy efficiency and demand-response plan with the Commission. If a utility does not file such a plan by September 1 of an applicable year, it shall face a penalty of $100,000 per day until the plan is filed. Each utility's plan shall set forth the utility's proposals to meet the utility's portion of the energy efficiency standards identified

in subsection (b) and the demand-response standards identified in subsection (c) of this Section as modified by subsections (d) and (e), taking into account the unique circumstances of the utility's service territory. The Commission shall seek public comment on the utility's plan and shall issue an order approving or disapproving each plan within 5 months after its submission. If the Commission disapproves a plan, the Commission shall, within 30 days, describe in detail the reasons for the disapproval and describe a path by which the utility may file a revised draft of the plan to address the Commission's concerns satisfactorily. If the utility does not refile with the Commission within 60 days, the utility shall be subject to penalties at a rate of $100,000 per day until the plan is filed. This process shall continue, and penalties shall accrue, until the utility has successfully filed a portfolio of energy efficiency and demand-response measures. Penalties shall be deposited into the Energy Efficiency Trust Fund. In submitting proposed energy efficiency and demand-response plans and funding levels to meet the savings goals adopted by this Act the utility shall:In submitting proposed energy efficiency and demand-response plans and funding levels to meet the savings goals adopted by this Act the utility shall:

(4) Coordinate with the Department to present a portfolio of energy efficiency measures proportionate to the share of total annual utility revenues in Illinois from households at or below 150% of the poverty level. The energy efficiency programs shall be targeted to households with incomes at or below 80% of area median income.

(5) Demonstrate that its overall portfolio of energy efficiency and demand-response measures, not including programs covered by item (4) of this subsection (f), are cost-effective using the total resource cost test and represent a diverse cross-section of opportunities for customers of all rate classes to participate in the programs.

Source: Illinois complied statutes, (220 ILCS 5/8-103), Sec. 8-103(f)(4-5). Energy efficiency and demand-response measures.

Massachusetts

While relying on the TRC as its primary test for DSM programs, Massachusetts includes additional benefits from low income programs in the calculation of the benefit cost ratio. Massachusetts also runs utility contributions through a coordinated program:

"The Department will rely on the Total Resource Cost Test to determine cost-effectiveness. The Total Resource Cost Test includes all benefits and costs associated with the energy system...." (D.P.U. Guidelines at 3.4.3) "Energy system" refers to entire resource system, and those costs and benefits that accrue to all ratepayers – participants and non-participants.

Benefits = $ value of avoided supply costs and non-resource impacts resulting from a program over the lifetime of the measure (Guidelines at 3.4.4). Benefits accrue from:

- Avoided energy, valued at different times (summer/winter and on/off peak)
- Avoided capacity, based on its value during peaking periods
- Avoided transmission
- Avoided distribution

- Effects on energy market prices, or DRIPE (electric), included in energy and capacity avoided costs
- Reductions in all costs associated with reduced customer arrearages, service terminations, and reconnections

...

Participant resource benefits account for the avoided costs of natural gas (for electric energy efficiency programs), electricity (for gas energy efficiency programs), oil, propane, wood, kerosene, water, sewage disposal, and other resources for which consumption is reduced as a result of implementation of an energy efficiency program. Guidelines §§ 3.4.4.1(b)(i), 3.4.4.2(b)(i). These benefits are calculated as the product of: (1) the reduction in consumption of the identified resource and; (2) a resource-specific avoided cost factor. Guidelines §§ 3.4.4.1(b)(i), 3.4.4.2(b)(i). Participant non-resource benefits include, but are not limited to: (1) reduced costs for operation and maintenance associated with efficient equipment or practices; (2) the value of longer equipment replacement cycles and/or productivity improvements associated with efficient equipment; (3) reduced environmental and safety costs, such as those for changes in a waste stream or disposal of lamp ballasts or ozone-depleting chemicals; and (4) all benefits associated with providing energy efficiency services to low-income customers. Guidelines §§ 3.4.4.1(b)(ii), 3.4.4.2(b)(ii).

Source: Mass Save, Presentation on Energy Efficiency Program Planning: Total Resource Cost Test Guidelines for Determining Cost Effectiveness of Energy Efficiency Programs in Massachusetts, May 10, 2011. See: http://www.ma-eeac.org/docs/5.10.11/TRCMassSave051011frev.pdf.

In addition, Massachusetts low income utility weatherization is coordinated with state and federal funding in a coordinated approach through Community Action Agencies:

"The low-income residential demand-side management and education programs shall be implemented through the low-income weatherization and fuel assistance program network and shall be coordinated with all gas distribution companies in the commonwealth with the objective of standardizing implementation."

Low-income Energy Affordability Network (LEAN), *G.L. c. 25, sec. 19 (St. 1997, c. 164, sec. 37) See:* *http://democracyandregulation.com/detail.cfm?artid=28.*

Missouri

While relying on the TRC as its primary test for DSM programs, Missouri specifically exempts government funded contribution to low income programs from consideration in the cost test. Missouri also exempts low income programs from the cost test:

The commission shall consider the total resource cost test a preferred cost-effectiveness test. Programs targeted to low-income customers or general education campaigns do not need to meet a cost-effectiveness test, so long as the commission determines that the program or campaign is in the public interest. Nothing herein shall preclude the approval of demand-side programs that do not meet the test if the costs of the program above the level determined to be cost-effective are funded by the customers participating in the program or through tax or other governmental credits or incentives specifically designed for that purpose.

Source: Missouri Revised Statutes, Chapter 393
Gas, Electric, Water, Heating and Sewer Companies, Section 393.1075, August 28, 2011

New Hampshire

New Hampshire uses the strict Total Resource Cost framework for all programs, including low income programs. However, the Commission has considered low income programs to be a unique need and can be more lenient in approving low income weatherization as compared with the other programs. New Hampshire had a 15% environmental adder until recently, but now treats those costs as internalized.

In New Hampshire, utilities coordinate with the CAP agencies that implement the state/federal weatherization assistance program for mutual leveraging. In the current plan the benefit cost ratio for the low income weatherization program is 2.2.

Source: Phone discussion with Jim Cunningham – Utility Analyst, New Hampshire Public Service Commission 5/14/2012; Telephone (603) 271-2431; e-mail: jim.cunningham@puc.nh.gov

New Jersey

New Jersey relies on the TRC test, but for low income programs other considerations are taken into account. The residential low income program is coordinated across utilities and administered by the New Jersey Department of Community Affairs. Environmental benefits are included in the test.

Although cost effectiveness is an important input into the decision as to which programs should be funded, other social factors need to be considered. For example, while the Residential Low-Income programs' costs exceed its benefits, other considerations may be taken into account that supports the continuation of these programs.

This report calculates monetary benefits accrued by avoiding environmental externalities. In December 2004, CEEEP conducted a thorough review of the environmental externality literature as part of its *Economic Impact Analysis of New Jersey's Proposed 20% Renewable Portfolio Standard* (RPS). That assessment concluded that although there are many and substantial health and environmental effects due to air emissions from power plants, quantifying the health and environmental effects for New Jersey requires additional modeling and research. Therefore, the externality values used in the 2003 report were also used in this report.

Source: Rutgers, Edward J. Blaunstein School of Planning and Public Policy, "Cost-benefit Analysis of the New Jersey Clean Energy Program Energy Efficiency Programs," Preliminary Report, January 9, 2008, P. 5. See: http://policy.rutgers.edu/ceeep/publications/2008/costbenefitclean.pdf.

The USF program was intentionally linked to the federal Low Income Home Energy Assistance Program (LiHEAP) in order to take advantage of the existing infrastructure already in place to administer LIHEAP. Through a shared application, and eventually a shared database system that was funded via USF, repetition of administrative resources was reduced, and applicants were conveniently able to apply for both programs simultaneously. LIHEAP was administered by DHS who subcontracted with the Department of Community Affairs (DCA) when the permanent USF program was authorized by the Board.

Source: State of New Jersey, Board of Public Utilities, Audits, In the Matter of the Department of Community Affairs State Fiscal Year 2008 Universal Service fund Administrative Expenses, Order

Approving DCA Fiscal Year 2008 USF Administrative Expenses, Docket No. E007060368. See: http://www.state.nj.us/bpu/pdf/boardorders/2009/2-11-09-1A.pdf.

New Mexico

While New Mexico relies primarily on the TRC for screening its DSM programs, low income weatherization includes a multiplier of 1.25 for benefits. In addition, 20% of energy savings is considered offset by specific low income program contributions to cost savings in the collections function. New Mexico specifically authorizes coordinated programs but does not require them.

(4) Adjustment to the adder calculation for low-income customer programs. In determining the lifetime energy savings from a given utility portfolio, lifetime energy savings from programs targeted exclusively to low-income customers will be valued at 1.25 times the actual KWh savings.

17.7.2.10 RESIDENTIAL PROGRAMS:

A. Purpose. This section requires public utilities to establish cost-effective energy efficiency programs to ensure that residential customers, regardless of income, have the opportunity to participate and benefit economically. The programs should be intended to assist residential customers or households, including low-income customers, with conserving energy, reducing demand or reducing residential energy bills.

B. A public utility may establish an energy efficiency program specifically for its low-income customers to assist the utility's efforts in offering a balanced portfolio of energy efficiency programs.

(1) Low-income program funding. A public utility's allocation of total energy efficiency program funding to low-income programs is to be based upon factors to be articulated by the utility such as:

(a) the program's expected customer participation rates for eligible customers;

(b) the program's potential to reduce the burden of utility costs on low-income customers; and

(c) the program's ability to reduce energy demand and consumption.

(2) Integration.

(a) A public utility may coordinate program service with existing resources in the community, including affordable housing programs, and low-income weatherization programs managed by the state of New Mexico. This section does not preclude the utility from designing and proposing low-income programs.

(b) Low-income energy efficiency programs should be designed, whenever possible, to provide program services through providers that have demonstrated experience and effectiveness in the administration and provision of low-income energy efficiency services and in identification of and outreach to low-income households. In the absence of qualified independent agencies, a public utility electing not to provide program services directly may solicit competitive bids for the provision of services by providers of related housing and construction services, and ensure appropriate training of such providers.

(3) Notification. Public utilities shall notify customers experiencing ability-to-pay problems of the utility's energy efficiency programs and hardship funds.

(4) Total resource cost test for low-income customer programs. In developing the TRC test for energy efficiency and load management programs directed to low income customers, unless otherwise quantified by the commission in a proceeding, electric public utilities shall assume that 20% of the calculated energy savings is the reasonable value of reductions in working capital, reduced collection costs, low or bad-debt expense, improved customer service effectiveness and other appropriate utility system economic benefits associated with low income programs.

[17.7.2.10 NMAC - Rp, 17.7.2.10 NMAC, 5-3-10]

TITLE 17 PUBLIC UTILITIES AND UTILITY SERVICES,
CHAPTER 7 ENERGY CONSERVATION
PART 2 ENERGY EFFICIENCY, Effective May 3, 2010

Rhode Island

The Rhode Island Public Utilities Commission ordered the TRC test for use in Rhode Island in its 2008 Docket No. 3931 on Standards for Energy Efficiency Procurement.

> Subsequently, National Grid proposed the specific costs and benefits to be included in the Rhode Island TRC test in its Least Cost Procurement Plan (September 2008) with support and input from the EERMC, which the Commission approved and ordered into effect. The Consultant Team reviewed National Grid's application of the TRC test in the 2012 EEPP methodology and found it to be consistent with standard practice and the Standards.

The Rhode Island TRC test includes the following benefits and costs:

> The benefits of the Total Resource Cost test include the discounted, monetized value of reduced energy (MWh) , reduced capacity needs (MW, avoids the costs of providing both peak demand, and the transmission and distribution system), reduced fossil fuel use (or increased use as a negative benefit), reduced water and sewer use, non-resource benefits (generally due to decreased operation and maintenance costs), and Demand Reduction Induced Price Effect (DRIPE, as included in the avoided costs of electricity). The benefits for reduced electric energy (MWh and MW) and other resources are monetized based on avoided costs. The costs include the costs of program planning and administration, marketing, rebates and other customer incentives, related implementation costs, customer contribution, program evaluation, and shareholder incentive costs.... The costs included in the TRC are those incurred by customers and the utility as a whole to support the efficiency programs that would not have been incurred without those programs.

Source: Docket 4295, Rhode Island Energy Efficiency and Resource Management Council Review and Approval of Cost Effectiveness of National Grid's 2012 Energy Efficiency Program Plan, Pursuant to §39-1-27.7(c)(5), November 16, 2011. See: http://www.ripuc.org/eventsactions/docket/4296-EERMC-Report(11-16-11).pdf.

Utah

In Utah, the two large utilities (one natural gas, the other electric) are required to contribute to the state's coordinated low income program which is run by a state agency through Community Based Organizations. This means that a set amount (currently $250,000 per utility per year) is contributed by each utility. It also means that overall cost effectiveness is ultimately determined by the standards of the state agency that contracts with the Community Based Organizations to deliver the program rather than through DSM cost tests. However, Rocky Mountain Power did calculate results on the TRC test for its (2012) annual filing on 2011 performance. Rocky Mountain Power DSM cost effectiveness was computed for lighting, furnace fans, and refrigerators for a service territory in which there is very little electric heat. The Company is currently reviewing the possible addition of shell measures for homes with whole house air conditioning.

Low Income Weatherization (Schedule 118)

The low income weatherization program provides weatherization and efficient appliance upgrades to income-qualified households on a no-cost basis. The program is administered by the Utah Department of Community and Culture ("DCC") who in addition to funding from the Company receives funds from the federal government. The federal monies can be used for household repairs as well as weatherization and other low income program services. This partnership allows for leveraging of Company funding with federal grants resulting in more comprehensive assistance to qualified households and a greater number of homes served.

The Company began working with local agencies in the delivery of program services in 1992. Recognizing that the majority of households in Rocky Mountain Power's service territory did not heat their homes with electricity, making the weatherization services component of the program less relevant to the Company's customers, the program was revised in 2005 to make it more applicable. Today, the majority of Company funding provided to DCC in support of program services is targeted towards the cost of electric efficiencies related to lighting and refrigerators. Since 1992, Rocky Mountain Power has provided funding on measures installed in over 5,400 homes.

The program is available to income qualifying customers who either own or rent single-family homes, manufactured homes or apartments.

Source: Rocky Mountain Power, 2011 Annual Energy Efficiency and Peak Reduction Report, Utah; Docket No. 12-035-57, In the Matter of the DSM Annual Report Filing by Rocky Mountain Power. See: http://www.psc.utah.gov/utilities/electric/elecindx/2012/1203557indx.html; electric tab.

Low Income Weatherization – Schedule 118

The tables below present the cost effectiveness findings of the Low Income Weatherization program based on Rocky Mountain Power's 2011 costs and savings estimates. The Utility discount rate is from the 2011 Integrated Resource Plan.

Cost effectiveness was tested using the 2011 IRP 35% east residential whole house load factor decrement.

Table 1: Low Income Weatherization
Annual Program Costs

	Program Costs	Utility Admin	Evaluation	Incentives	Total Utility Costs	Net Participant Incremental Cost
Low Income weatherization	$57,852	$15,696	$0	$172,018	$245,567	$0

Table 2: Low Income Weatherization
Savings

	Gross kWh Savings	Realization Rate	Adjusted Gross Savings	Net to Gross Percentage	Net kWh Savings	Measure Life
Low Income weatherization	1,677,625	80%	1,342,100	100%	1,342,100	11.7

Table 3: IRP 35% Load Factor Decrement

All Measures				AC: IRP 35% LF Decrement	
	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0197	$245,566	$1,174,751	$929,185	4.78
Total Resource Cost Test (TRC) No Adder	$0.0197	$245,566	$1,067,955	$822,389	4.35
Utility Cost Test (UCT)	$0.0197	$245,566	$1,067,955	$822,389	4.35
Rate Impact Test (RIM)		$1,350,212	$1,067,955	-$282,257	0.79
Participant Cost Test (PCT)		$0	$1,276,664	$1,276,664	NA
Lifecycle Revenue Impacts ($/kWh)				$0.000001174	
Discounted Participant Payback (years)				NA	

Source: Appendix 1, Cost Effectiveness, 2011 Utah Energy Efficiency and Peak Reduction Annual Report, Rocky Mountain Power Docket No. 12-035-57, In the Matter of the DSM Annual Report Filing by Rocky Mountain Power. See: http://www.psc.utah.gov/utilities/electric/elecindx/2012/1203557indx.html; electric tab. Source: Brenda Salter, Utah staff; Telephone: 801-530-6290; e-mail: bsalter@utah.gov.

Oak Ridge Study (Coordinated Programs)

Cost sharing in coordinated programs is discussed by Brown and Hill in an Oak Ridge study. This study describes different way of splitting costs and benefits between a utility and government.

As shown in Table 3.2, if funded by DOE, HHS, or any other federal government agency, the amount of these outlays cannot be considered a "cost" for participants in determining cost effectiveness. Furthermore, they are not a "cost" for nonparticipants. The reason is rooted in the definition of the nonparticipant test. The nonparticipant test measures the amount by which revenues (or rates) must be increased to compensate for the revenues lost by running the low-income DSM program. The expenditure of federal funds for coordinated programs is not a direct cost to the utility or its ratepayers in running the DSM program. Including it as a "cost" in the nonparticipant (i.e., Ratepayer Impact Measure) test distorts the purpose for which the tests were developed and the perspective from which they are measured.

Brown, Marilyn A. & Lawrence J. Hill, Low-Income DSM Programs: Methodological Approach to Determining the Cost-Effectiveness of Coordinated Partnerships. Nashville, Tennessee: Oak Ridge National Laboratory, ORNL/CON-375, May 1994.

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