Rocky Mountain Power Utah
Home Energy Savings Program

Proposed Tariff Changes

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Home Energy Savings Program Administrator

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Overview

The Home Energy Savings (HES) program was approved by the Utah Public Service Commission and began operating in September 2006. In March 2007, incentive level changes reflecting the availability of Questar Gas Company incentives for appliances, home improvement and HVAC were approved and became effective. Changes to insulation measures were filed on March 23, 2009 and became effective on June 1, 2009.

Additional changes are required to align incentives with revised measure costs and savings estimates, align with revised standards, reflect the impacts of other incentives such as federal tax credits, facilitate program administration and maintain cost effectiveness. For the purposes of estimating participation, changes are assumed to take effect on July 1, 2010.

Proposed changes to existing measures are as follows:

- Home Improvement
    - Insulation-Attic
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    - Windows
- Lighting
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    - Ceiling Fans
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Table 1 Utah 2010 Summary of HES Measure Changes

Utah 2010 Summary of HES Measure Changes							
Category	**Measure**	**Measure Cost Change**	**Measure Life Change**	**Gross/Net kWh per Unit Change**	**Incentive per Unit Change**	**Qualification Change**	**Note**
Home Improvement	Insulation - Attic - Electric heating (2009)						Change to two tiers depending on final insulation levels
Home Improvement	Insulation - Attic - Electric heating -Tier 1 R-19	x	x	x		x	
Home Improvement	Insulation - Attic - Electric heating -Tier 2 R-30		x	x	x	x	
Home Improvement	Insulation - Attic - Electric cooling (2009)						Change to two tiers depending on final insulation levels
Home Improvement	Insulation - Attic - Electric cooling -Tier 1 R-19	x	x	x	x	x	
Home Improvement	Insulation - Attic – Electric cooling -Tier 2 R-30		x	x	x	x	
Home Improvement	Insulation Spiff (Attic and Wall/Floor)				x	x	New incentive to encourage comprehensive projects
Home Improvement	Insulation - Walls – Electric heating		x	x			
Home Improvement	Insulation - Walls – Electric cooling		x	x			
Home Improvement	Insulation - Floor – Electric heating	x	x	x			
Home Improvement	Windows	x		x	x	x	Electric cooling is required
Lighting	CFLs-Spiral		x	x	x	x	Expands availability
Lighting	CFLs-Specialty	x	x	x	x	x	New lighting measure
Lighting	Ceiling Fans	x	x	x			
Lighting	Fixtures	x		x			
Appliances	Clothes Washers - Tier 1 (1.72-1.99)						Discontinue incentives for machines below 2.0 MEF

Utah 2010 Summary of HES Measure Changes							
Category	**Measure**	**Measure Cost Change**	**Measure Life Change**	**Gross/Net kWh per Unit Change**	**Incentive per Unit Change**	**Qualification Change**	**Note**
Appliances	Clothes Washers - Tier 2 (2.0+)						See new proposed Tier 1
Appliances	Clothes Washers - New Tier 1 (2.0-2.45)	x		x		x	Add electric water heat requirement
Appliances	Clothes Washers - New Tier 2 (2.46+)	x		x		x	Add electric water requirement
Appliances	CW Recycling			x			
Appliances	Dishwashers	x		x		x	Add electric water heat requirement
Appliances	Refrigerators	x	x	x			
Appliances	Electric Water Heaters	x	x	x		x	
HVAC	Room AC	x		x			
HVAC	RAC Recycling						Discontinue incentive offer
HVAC	CAC Tune-ups			x	x		Separate from heat pump
HVAC	HP Tune-ups			x	x		New tune-up measure
HVAC	Duct Sealing						Change to duct sealing and insulation bundle
HVAC	Duct Insulation						Change to duct sealing and insulation bundle
HVAC	Duct Sealing & Insulation – Electric heating	x		x	x	x	New bundled measure
HVAC	Duct Sealing & Insulation – Electric cooling	x		x	x	x	New bundled measure

X indicates changes

Proposed Measure Changes

Home Improvement

Revised savings estimates for the home improvement measures (insulation and windows) have been calculated using the building simulation modeling software EnergyGauge (USA v.2.8.02). Current insulation savings estimates were calculated using Lawrence Berkeley Lab's LBL simulation tool. Current window savings estimates are based on the deemed savings estimates from the Regional Technical Forum (RTF). The decision to move from RTF savings estimates to a simulation model (LBL) was provided in support documents for the March 23, 2009 insulation filing. The decision to improve the simulation results by utilizing EnergyGauge in place of the LBL tool is based on improved granularity of model inputs applicable to cooling savings and the general industry move toward RESNET rated software tools. In addition, Questar Gas Company made a similar change from the LBL tool to EnergyGauge when refining their 2010 programs.

Insulation-Attic

The recommendation for attic insulation is to offer two tiered incentive levels labeled as Tier 1 and Tier 2, designed to facilitate bringing the home's insulation to a minimum of R-38. The insulation depth requirements are designed to align with the current Questar Gas Company requirements.

Tier 1 is for the addition of a minimum of R-19 to the attic with a requirement that the final insulation level is R-38 or greater. Proposed incentive levels are $0.08 per square foot for gas heated homes with central air conditioning, and $0.30 per square foot for electrically heated homes.

Tier 2 is for the addition of a minimum of R-30 to the attic with a requirements that the final insulation level is R-38 or greater. Proposed incentives levels are $0.15 per square foot in gas heated homes with central air conditioning, and $0.40 per square foot for electrically heated homes.

To insure that all houses achieve a final insulation level of R-38 or greater while at the same time aligning insulation depth requirements with Questar requirements, the prior maximum pre-existing insulation level is proposed to change. It is currently R-18 or less and is proposed to change to R-20 or less.

To promote a more comprehensive approach for insulation projects, a one-time incentive of an additional $200.00 per home will be available if the attic is insulated at the same time as another area (wall - electric heating & electric cooling or floor - electrically heated homes only) of the same house is insulated by the same contractor submitted on the same application with one invoice showing all work performed at the same time.

Incentive levels reflect current market costs of $0.40 per square foot for R-19 and $0.60 per square foot for R-30. These costs reflect actual customer costs for work completed after June 1, 2009 and information from active insulation contractors. Available incentives from Questar Gas Company's and the availability of the federal tax credit for energy efficient home improvements were also considered when designing revised incentive levels. (http://www.energystar.gov/index.cfm?c=tax_credits.tx_index

Existing requirements for insulation to be installed between conditioned and unconditioned spaces only and heating or cooling equipment requirements will remain the same as current requirements.

Summary of savings changes for attic insulation:

Insulation - Attic (Savings)	Gross kWh per sf. current	Gross kWh per sf. proposed
Electric cooling - Tier 1	0.20	0.13
Electric cooling - Tier 2	NA	0.16
Electric heating - Tier 1[1]	1.61	0.89
Electric heating - Tier 2[2]	NA	1.07

Summary of incentive changes for attic insulation:

Insulation - Attic (Incentives)	$ / sf. current	$ / sf. proposed
Electric cooling - Tier 1	$0.20	$0.08
Electric cooling - Tier 2	NA	$0.15
Electric heating - Tier 1	$0.30	$0.30
Electric heating - Tier 2	NA	$0.40

Two additional changes in assumptions are recommended for this measure; 1) a reduction in the measure life and, b) utilization of a realization rate in addition to the net to gross ratio.

Economic analysis of this measure has previously utilized 45 years (the value from the RTF that has been previously utilized). In reviewing current work, it was noted the current California Database for Energy Efficiency resources (DEER) has capped measure life at 20 years and Idaho Power utilized a 25 year assumption for their attic insulation program. This market research indicates a shorter measure for economic analysis would align with other programs and the average of all three (45 years, 25 years and 20 years), 30 years is proposed.

[1] Weighted average of homes with electric heat and electric cooling and homes with electric heat only
[2] Weighted average of homes with electric heat and electric cooling and homes with electric heat only

In re-evaluating this measure, the economic analysis recognizes that there are a high volume of installations by a variety of contractors, some of whom are new, and the limited customer investments beyond incentive payments can result in conditions where every unit of material does not deliver the deemed savings. Site inspections on a portion of the installations are an on-going part of program delivery and are included in the forecasted non-incentive expenses, but it is not possible or economically viable to inspect each installation. As such, we recommend Rocky Mountain Power utilize a realization rate in addition to a net to gross factor in the economic analysis of these proposed changes.

Insulation-Wall

The changes to this measure are adjustments to savings reflecting the use of EnergyGauge.

Summary of savings changes for wall insulation:

Insulation - Wall (Savings)	Gross kWh per sf. current	Gross kWh per sf. proposed
Electric cooling	0.16	0.50
Electric heating[3]	3.76	5.91

Insulation-Floor

The only changes to this measure are adjustments to savings reflecting the use of EnergyGauge. This measure is for electrically heated homes only.

Summary of savings changes for floor insulation:

Insulation - Floor (Savings)	Gross kWh per sf. current	Gross kWh per sf. proposed
Electric heating[4]	2.59	4.07

Insulation measure costs for economic analysis are based on analysis of applications received from customers. Forecasts for 2010 participation (on a square foot basis) and energy savings for all insulation measures are available in *Attachment M.*

Windows

The program recommends aligning Rocky Mountain Power's window specification requirements with the federal Residential Energy Property Credit requirements which will align

[3] Weighted average of homes with electric heating and electric cooling and homes with electric heat only
[4] Weighted average of homes with electric heating and electric cooling and homes with electric heat only

the U-Factor with the revised 2010 draft criteria for Energy Star windows[5]. To be eligible for an incentive, windows will be required to have a U-Factor 0.30 or lower with a Solar Heat Gain Coefficient (SHGC) of 0.30 or lower. This represents a change from U-Factor 0.35 and SHGC 0.33. This change is designed to sustain the momentum for the "0.30 class" windows market that will exist after the federal tax credits expires at the end of 2010.

Proposed savings estimates are based on EnergyGauge for the same reasons outlined in the insulation section. The current savings estimates are based on RTF deemed values and may not fully reflect the Utah cooling savings. The savings are estimated assuming that a new 0.35 U-factor and .45 SHGC window would be installed. This window functions as both a savings and measure cost baseline

Summary of savings changes for windows:

Windows (Savings)	Gross kWh per sf. current	Gross kWh per sf. proposed
Electric cooling	0.11	0.80
Electric heating (w CAC)	1.88	0.30
Electric heating (w/o CAC)	1.78	NA

Summary of incentive changes for windows:

Windows (Incentives)	$ / sf. current	$ / sf. proposed
Electric cooling	$0.95	$0.50
Electric heating (w CAC)	$0.95	$0.50
Electric heating (w/o CAC)	$0.95	NA

The proposed incentive of $0.50 per square foot covers half of the incremental cost of this higher efficiency window. Data from applications and RS means indicate that high performance windows in Utah's market cost $1.00 per square foot more than windows that meet the current ENERGY STAR U-factor requirement of 0.35[6]. Cost was established through contractor call down and RS Means. This is a decrease compared to prior assumptions and is largely driven by the federal requirements.

Incentives are currently available for homes with either electric cooling or electric heating. The revised savings analysis indicates negative electric savings for homes with only electric heating. To insure that each installation contributes electric energy savings, eligibility will now be tied to the electric cooling, regardless of heating source.

[5] Energy Star requirements for northern climate zone do not require a SHGC rating.
[6] As noted, Energy Star does not require a SHGC rating for windows in the northern climate zone. For the purposes of savings analysis, an SHGC of 0.45 was utilized. This rating was utilized based on market data from Utah window manufacturers.

As part of the proposed changes, we recommend the measure life for windows be adjusted to thirty years to align with other home improvement measures with comparatively long life, e.g. insulation. This ensures the economic analysis is conservative for all home improvement measures in the program and recognizes that windows may be changed for many reasons other than their affect on energy consumption.

Forecasts for 2010 participation (on a square foot basis) and energy savings are available in *Attachment M.* The participation projections take into account incentives from Questar Gas Company for gas heated homes, as well as the federal tax credit available through 2010.

Lighting

Compact Fluorescent Lamps (CFLs)

The Home Energy Savings program in Utah currently delivers CFLs to end use customers through a markdown and buy-down model. Currently, the program offers incentives of up to $1.35 to the manufacturer and/or retail distributor for the purpose of discounting CFLs to the end use customer. To insure that "bought down" CFLs were positioned to compete favorably on a cost basis with incandescent bulbs; a not-to-exceed end retail price was established $1.49 per bulb. Currently, these incentives are offered on a seasonal basis (October 1 through March 31) at selected retail outlets including small hardware, grocery, and big box stores. To be eligible for incentives, bulbs must be Energy Star qualified.

The lighting market has changed with the increased sales/installation of basic CFLS and lighting standards contained the Energy Independence and Security Act of 2007. These standards are phased in beginning in 2012 and while they don't ban incandescent bulbs, the new performance standards will begin to reduce incandescent availability or increase costs or both. These upcoming changes in the incandescent market are likely to drive increased availability and reduced pricing of basic CFLs, but not materially change the advanced or specialty lighting (i.e., dimmable, reflector, globe, a-lamp, 3-way, candelabra or outdoor type lamps) market in the near future. As a result, the proposed changes to the program are designed to build momentum and support for the basic CFLs so retailers and consumers alike distribute, price and purchase them as a regular and trusted replacement for incandescent bulbs. The proposed changes are also designed expand the program impact in the residential lighting market by increase the availability and reduce the price of advanced (or specialty) lighting products for which incandescent (including those meeting the new performance standards) will remain a credible alternative for many consumers.

Summary of proposed changes

- Remove date restrictions and operate program throughout the year
- Expand eligibility to include all market available qualified bulbs
- Expand not-to-exceed retail price from $1.49 to a range between $2.50 and $14.00 depending on bulb type

- Remove current wattage specifications to make it easier to include a range of specialty bulbs. Maintain Energy Star qualified requirement.
- Change the maximum incentive level from $1.35 to a range between $1.50 and $3.50 depending on bulb type
- Change the measure life used for economic analysis.

Bulb types eligible for incentives will be managed by the program administrator according to the following criteria.

Product Selection

The following are primary factors when determining CFL incentive amounts:

- Bulb type
- Original retail cost
- Cost of incandescent equivalent
- Pack Size
- Negotiations with Retail / Manufacturer partnerships

CFL Selection Criteria:

- Must be ENERGY STAR qualified
- Residential application
- Direct replacement for an incandescent bulb

CFLs eligible for incentives will fall into one of two categories:

- Spiral CFL
    - Defined as a bare CFLs (T2, T3, T4 twist) of wattages less than 26 watts
- Specialty CFL
    - Specialty CFLs are defined as screw-in CFLs including, but not limited to: A-lamps, candelabras, G-lamps (globes), reflectors (flood), PAR lamps, torpedoes, dimmable CFLs, three-way twisters and twisters greater than 26 watts
    - Any other CFL that falls outside the definition of spiral
    - Covers the various CFL products that have been specifically created to replace special purpose incandescent bulbs

The table in the current Schedule 111 tariff will be revised to accommodate the expanded selection of bulbs, incentives and not to exceed selling prices. The information in Schedule 111 will be based on the table below.

CFL Incentive Amounts and Not-To-Exceed Prices		
Description	**Maximum Incentive Amount**	**Not-To-Exceed Retail Price**
Bare Spiral	$1.50	$2.50
Globe	$1.75	$8.00
Reflector	$2.25	$8.00
3-Way	$2.25	$8.00
A-Lamp	$1.75	$8.00
CFL Candelabra	$1.75	$6.00
Cold Cathode	$2.25	$6.00
Dimmable	$3.50	$14.00
Outdoor Lamp	$2.25	$8.00

Savings will be reported for each wattage of lamp sold. Reported savings are calculated using a deemed wattage baseline specific to each lamp. Hours for all wattages are deemed at 2.3 hours per day. The deemed hours are based on recent work done by the Regional Technical Forum which recognizes that as CFL penetration increases, additional bulbs are being installed in sockets with lower burn hours. The assumption for non-installation (20%) used in the current savings calculation will continue to be utilized as part of the revised savings calculations. Average savings, cost and incentive per bulb is provided for the purposes of economic analysis.

The original dates for lighting were intended to align with naturally occurring seasonal lighting volumes which increase during the winter months and with national campaigns dates such as Change-a-Light, Change the World. It also the months during which retailers increased shelf space for all lighting products, including CFLs. Since 2006, retailers have increased their focus on efficient lighting throughout the year. The year round change is designed to align the company lighting offer with the change in retailer stocking practices and to respond to manufacturer and retail request for continuity. In addition, a year round offer continues to reinforce the customer message that efficient lighting is widely available and competitively priced and not tied to seasonal campaigns or promotions.

In recognition of potential impacts from changes in federal lighting standards and on-going activity in the market ahead of the change in standards, we recommend the lifetime for all lighting measures will be reduced from nine years to five to provide a more conservative assessment of the economic benefits.

Forecasts for 2010 participation and energy savings are available in *Attachment M.*

Ceiling Fans

Savings from ceiling fans, which are assumed to be delivered from the efficient lighting included in the unit, have changed as the result of new data which is based on the completion of a study by Lawrence Berkeley National Labs in 2007 study. The update to ENERGY STAR's Ceiling Fan calculator was finalized in 2009. The incentive remains at $20 along with the

"ENERGY STAR qualified" requirement. In addition to revised savings, measure costs and measure life have been revised, also based on ENERGY STAR data.

Summary of ceiling fan changes:

Ceiling fans	current	proposed
Unit kWh/yr - gross	107	159
Measure costs	$25	$86
Measure life	15	10

Forecasts for 2010 participation and energy savings are available in *Attachment M.*

Lighting Fixtures

Savings and costs have been revised based on RTF data developed in support of the Northwest Power and Conservation Council 6th Power Plan. The customer incentive remains at $20 along with the "ENERGY STAR qualified" requirement. To better align with the design intent of this measure, the requirement for "hardwired" has been added.

Summary of lighting fixture changes:

Fixtures	current	proposed
Unit kWh/yr - gross	93	50
Measure costs	$18	$20

Forecasts for 2010 participation and energy savings are available in *Attachment M.*

Appliances

Clothes Washers

Currently, the clothes washer measure is offered in a two tier structure for the purchase and installation of a qualified energy efficient unit (meets or exceeds ENERGY STAR standards). The tiers, and corresponding incentives, are based on the Modified Energy Factor (MEF) of the unit. Recently Energy Star revised their eligibility standards upward to align with market volumes and ever increasing equipment efficiencies. This triggered a review of washing machine sales volumes by efficiency level in the Utah market as well as the baseline utilized by the program for estimating savings. The current baseline of 1.26 MEF was adjusted to 1.66 MEF.

Based on model availability in the marketplace and the need to maintain cost effectiveness, it is recommended that the two tier system be continued with adjustments in the tier levels. In addition, since the available average savings from units served by either gas or electric water

heating equipment declines below a level necessary for cost effectiveness, it is recommended that electric water heating be added as a requirement. The lower range of the MEF value for the first Rocky Mountain Power tier for this measure will align with the lower range of the MEF value for the second Questar Gas Company tier. Incentive for each of the revised Tiers; $50 and $75 remain the same.

Summary of qualification changes for washing machines:

Clothes Washers (Qualification)	current	proposed
Tier 1	MEF 1.72-1.99	MEF 2.0-2.45 and WF 6.0 and below; electric water heat
Tier 2	MEF 2.0+	MEF 2.46+; electric water heat

Summary of savings changes for washing machines:

Clothes Washers (Savings)	Gross kWh per unit current	Gross kWh per unit proposed
Tier 1	166	133
Tier 2	187	162

Revised measure costs for the new tiers were also developed as part of this work. This information, in addition to forecasts for 2010 participation and energy savings are available in *Attachment M.*

Clothes Washer Recycling

Currently, the clothes washer recycling measure is designed to remove older washing machines which may be repaired and sold in the secondary market by providing a $25 incentive to a retailer who recycles a Rocky Mountain Power customer's old clothes washers after they have purchased an efficient model eligible for program incentives. The Rocky Mountain Power retailer must recycle the customer's existing clothes washer. The existing clothes washer must be replaced by a new, energy efficient model that qualifies for the program. A change in the procedure that triggers the recycling incentive payment to the retailer is being proposed. Savings reporting for this measure will change for machines recycled after the effective date since they will all be attached from homes with electric water heat.

Summary of measure

- Incentive amount per unit: $25 for mid-market
- Savings per unit: 784 gross kWh
- Savings reporting methodology is based on D &R International analysis
- Change incentive application processing procedure
    - Eliminate requirement for processing of customer incentive application prior to retailer receiving funds

Existing Procedure

- Customer purchases qualified clothes washer and submits incentive application
- Retailer delivers new machine and picks up existing machine
- Machine is recycled
- Retailer submits recycling incentive application
- Customer incentive application must be processed prior to the funds being released to the retailer

Proposed Procedural Change: Incentive Processing

- Eliminate requirement for processing of customer incentive application prior to retailer receiving funds.
- Retailer to submit clothes washer recycle incentive form with customer eligibility verification and proof of purchase for new qualified model.

Details on participation, energy savings and measure costs are available in *Attachment M.*

Dishwashers

Currently, a $20 incentive is offered to consumers who purchase a qualified ENERGY STAR dishwasher. To receive an incentive, customers must complete and submit an application for payment. Incentives for dishwashers are available year round. Based on new Federal Standards that went into effect in January, 2010, the savings available from an "ENERGY STAR qualified" dishwasher decreased and negatively impacted the cost effectiveness.

The recommendation is to change the equipment eligibility from "ENERGY STAR qualified" to minimum qualification of 0.72 EF or higher and add the requirement for units supplied by electric water heat only. This EF level aligns with the Consortium for Energy Efficiency (CEE) Tier 1. Since the new federal standards serves as the new baseline and reduces the electric savings available for each unit, it is necessary to add electric water heating as a requirement necessary to receive an incentive. The incentive remains unchanged at $20.

Summary of savings changes for dishwashers:

Dishwashers	current	proposed
Unit kWh/yr - gross	19	48

Qualification	ENERGY STAR qualified	EF 0.72+ and electric water heat

Revised measure costs for this measure were also developed as part of this work and are available, in addition to forecasts for 2010 participation and energy savings in *Attachment M.*

Refrigerators

Updated data was developed for refrigerators and is being provided here as information only and in support of the economic analysis for the revised program. Updated data includes revised unit savings, measure costs and measure life. The incentive amount remains unchanged at $20. The qualification remains "ENERGY STAR qualified" Per unit changes are provided in the table below.

Summary of refrigerator changes:

Refrigerators	current	proposed
Unit kWh/yr - gross	98	47
Measure costs	$99	$15
Measure life	19	20

Forecasts for 2010 participation and energy savings are available in *Attachment M.*

Electric Water Heaters

The program currently offers a $50 incentive to customers who purchase a 40+ gallon electric water heater with an Energy Factor (EF) of 0.93 or more. EF requirements for water heaters are generated at the federal level and depend upon tank volume and are lower for larger tanks sizes. Tanks meeting the current requirements are available in the 40-49 gallon range. Larger tanks meeting the current 0.93 requirement are not as widely available and most participation to date has been in the smaller tank sizes. In recognition of the savings available from upgrades in the larger tank sizes, the proposed changes is to use three separate EF requirements for the three most common electric water heater tank sizes. The incentive will remain the same.

Summary of water heater changes:

Electric water heater	current	proposed
Unit kWh/yr – gross (avg. of three capacities)	91	117
Measure costs	$34	$93
Measure life	10	12

Measure	Rated Capacity (gal)	Minimum EF requirement

Electric Water Heater	40	0.93
Electric Water Heater	50	0.91
Electric Water Heater	66	0.89

Forecasts for 2010 participation and energy savings are available in *Attachment M.*

HVAC

Room Air Conditioners

Currently, a $30 incentive is offered to customers who purchase an ENERGY STAR qualified room air conditioner. Incentives for room air conditioners are currently available during the second and third quarters of the year to coincide with retailer stocking practices, and the majority of the sales. To improve participation and streamline program administration, this change expands incentive eligibility to year-round. Unit savings and measure costs are also updated and used in the economic analysis.

Summary of room air conditioner changes:

Room air conditioner	current	proposed
Unit kWh/yr - gross	92	99
Measure costs	$150	$50

Forecasts for 2010 participation and energy savings are available in *Attachment M.*

Room Air Conditioner Recycling

Currently a $20 incentive is offered to customers who recycle an old room air conditioner unit. The incentive requires the purchase of a program qualifying room air conditioner. The intended delivery channel for this measure was "turn in" events operated in conjunction with retailers who sold new units, or as autonomous "turn in" events. Despite strong retailer outreach and targeted marketing efforts, the program has not provided any incentives for this measure in the past two years. Given the logistical challenges, the recommendation is to discontinue the offer.

Central Air Conditioner Tune-Up and Heat Pump Tune-Up

The original design intent of this measure was to promote a systematic energy savings approach to preventative maintenance work done by a homeowner's regular HAVC contractor. Many firms provide tune-up or check –ups or spring start-ups, but the level of service and focus on energy savings adjustments varies widely. This offer was also designed to support and align with activities such as the best practices installation offer in the Cool Cash program which also utilizes diagnostics for refrigerant charge and air flow to inform equipment adjustments. Original savings estimates were based on a weighted average of unit size.

2009 results reflect a few contractors without existing end use customer relationships have entered the area and market this service on a volume basis. Participation has been highest with multi-family complex air conditioning units. The volume of multi-family unit participation which tend to have smaller units than a typical Utah home have weighted the savings downward to the point where adjustments are warranted to insure cost effectiveness on a measure level. In addition, the presence of new high volume contractors has introduced some uncertainty around the true selling costs for these services.

The proposed change is to provide air conditioner and heat pump tune up measures as specific categories and align customer and contractor incentives with available savings. Estimate of energy savings by equipment type will continue to be based on RTF data which represents some of the more reliable and conservative estimates available. It should be noted that even with the adjustment in the customer incentive and the elimination of the contractor incentive for air conditioners, the measure is still marginally cost effective and further adjustments may be warranted

Summary of HVAC tune-up changes:

	current unit kWh/yr - gross	**proposed unit kWh/yr - gross**	**current customer incentive**	**proposed customer incentive**	**current contractor incentive**	**proposed contractor incentive**
AC tune-up (current)	61	NA	$100	NA	$25	NA
AC tune-up (proposed)	NA	62	NA	$20	NA	$0
HP tune-up (proposed)	NA	534	NA	$75	NA	$25

Requirements for the service to be delivered by a program qualified contractor and the existing program quality assurance processes including site inspections will continue. Training and communication with HVAC contractors will increase.

Forecasts for 2010 participation and energy savings are available in *Attachment M.*

Duct Sealing and Duct Insulation

The original design intent of the duct sealing measure was to build off of the training, testing protocols and savings estimates developed under the Performance Tested Comfort System (PTCS) approach to duct sealing. As originally designed, it was intended to be an additional offering for established HVAC or allied trade contractors. Similar to the HVAC tune-up, some of this work was already occurring in the market, but varied widely in quality and attention to systematic practice. The measure costs were split when Questar began offering their programs in 2007. Duct insulation was added at that time. The duct sealing offer was designed to achieve energy savings through a systematic approach to this work. The measure was bundled (ducted

electric cooling or heating) for the purpose of administrative ease and to see if there was actual contractor interest to justify program training and quality assurance follow-up. Original savings estimates were based on a weighted average of configurations (electric cooling vs. electric heating).

2009 results reflected a few contractors without existing end use customer relationships enter the area and market this service on a volume basis, particularly in combination with the Questar Gas company incentives where participation has been highest. Similar to other measures with companion incentives, it is now time to optimize cost effectiveness on a measure level. In addition, the presence of new high volume contractors has introduced some uncertainty around the true selling costs for these services.

Currently the program offers incentives for duct sealing and duct insulation as separate measures. The recommendation is to combine these measures to promote best building science practices, and to more fully ensure the quality of the work performed. By combining duct insulation with duct sealing the program will require contractors wishing to insulate ducts be program trained and qualified. The extensive training covers proper use of duct testing equipment, (blower doors, duct blasters, CO monitors), as well as the appropriate method to perform CAZ testing, duct sealing with mastic, and installation of duct insulation.

Summary of ducts sealing & duct insulation changes:

	current unit kWh/yr - gross	**proposed unit kWh/yr - gross**	**current customer incentive**	**proposed customer incentive**	**current contractor incentive**	**proposed contractor incentive**
Duct sealing (AC or electric heat) 2009 weighted average of both gas & electric	106	NA	$150	NA	$50	NA
Duct insulation (AC or electric heat) current	439	NA	$75	NA	$25	NA
Duct sealing & insulation (electric cooling) proposed	NA	612	NA	$150	NA	$50
Duct sealing & insulation (electric heat) proposed	NA	3,777	NA	$300	NA	$50

In addition to adjustment in incentives, the following requirements will help insure electric energy savings from each project.

- Ductwork must be in unconditioned space
- Duct insulation must be installed at a R-6 or greater level
- Duct sealing must reduce duct leakage to outside by 50% with a 100 CFM minimum reduction
- Ducts must be sealed with mastic

- Both services must be performed at the same time to qualify for incentives.

Revised savings estimates are based on EnergyGauge modeling software. The savings estimates were compared to REM/Design v. 12.61, RTF, and Delta T (a key developer of the PTCS protocols) to assess reasonableness.

Requirements for the service to be delivered by a program qualified contractor and the existing program quality assurance processes including site inspections will continue. Training and communication with contractors will increase. As with other measures in this program that are eligible for companion incentives for Questar Gas Company, the program administrator plans on utilizing the provisions of the cross release language proposed by Rocky Mountain Power that will be implemented at the same time as these changes to gain better insights into the range of delivery costs of this measure. Additional adjustments may be warranted.

Participation, Measure costs and energy savings available for 2010 are available in *Attachment M.*