Energy Savings Calculation Changes and Cost Effectiveness Inputs

Energy Savings Calculations
During the original design, this program utilized per square foot savings values derived from Regional Technical Forum (RTF) data. RTF data was chosen based on the prior weatherization studies that had been completed in the Northwest. RTF does not have explicit cooling load savings calculations since the Northwest is typically heating dominated. To develop an estimate of cooling savings and account for the gas /electric heat split in Utah, the RTF estimates were used in conjunction with heating and cooling degree day data to arrive at the per square foot deemed savings; one each for attic, wall and floor insulation. These numbers had the advantage of simplicity for program administration and were appropriate for more modest participation estimates. While the program as whole was cost effective, certain insulation measures were not cost effective from a Utility Cost Test (UCT) and a Total Resource Cost (TRC) perspective on a stand alone basis. With modest participation expected, the impacts on the Home Energy Savings program as a whole were minor. Energy savings for 2006, 2007 and 2008 were reported using the values derived from RTF data, as was the data for the first two months of 2009.

Given the dramatic increase in insulation measure activity in late 2008, the Company and program administrator recognized the need to generate better savings estimates and assess cost effectiveness of the insulation measures on a stand alone basis so that elevated participation would not permanently impact program cost effectiveness. Recognizing the RTF derived estimates were a proxy for cooling savings and substantial information about the Utah market was available from completed incentive applications, the program administrator recommended the use of a simulation model. Simulation models are computer based models which allow energy analysts to provide input information on variables such as existing insulation, post project insulation levels, building size and configuration, cooling and heating plant efficiencies, climate zone, etc. The Home Energy Saver simulation tool was selected for the following reasons: 1) Questar Gas Company utilizes this model to calculate their insulation savings, 2) it is widely used in the industry and 3) it is supported by Lawrence Berkley Laboratory.

Inputs provided to the Home Energy Saver simulation tool were based on application data and professional judgment for such factors as cooling system efficiency which was adjusted up from the default data to 12 SEER to partially reflect Company efforts to increase cooling system efficiencies. The values generated from the simulation tool were generally higher than those calculated from RTF data. The exception is electric savings from insulating floors in gas heated and electrically cooled homes. The model indicates negative electrical savings for this measure which led to the decision to propose discontinuation of the incentive for this measure.

Cost Effectiveness Inputs
While the the Company typically provides cost effectiveness on a program level with additional analysis by measures (or groups of measures) view, this filing is for a single measure. Given the dynamics of participation, the challenges in estimating overall

participation and the limited electric energy savings as currently designed, the Company chose to provide the benefit cost analysis that was done to set the incentive levels on the per square foot basis to ensure the measure was cost effective on a stand alone basis going forward. Assumptions are noted in the cost effectiveness analysis provided by the Cadmus Group as Attachment C. Additional information on components of that analysis is provided here.

Measure cost data utilized is the average cost data listed in Table 1 of the advice letter and represents the most certain data on costs at this time. These are total costs and for purposes of cost effectiveness and incentive design, the costs were multiplied by 50% in cases where a Questar incentive is available. This is assumed to be the case for all 2008 applications. In 2009, after dividing the incentive categories into electric heat and electric cooling (gas heat) categories, the assumption is made that all electric cooling homes will also receive a Questar incentive and the cost allocation described above is applied. In the case of electric heating, it is assumed that no Questar incentive is available and the full measure costs are utilized.

For most measure level cost benefit analysis, administrative costs are challenging to allocate to the measure level and may not be included. This is appropriate for measures with comparatively low participation or contributions to overall program administration expenses. In the case of insulation measure with current participation levels and application volumes, the personnel required to perform quality assurance and process applications is significant and reasonably quantifiable on a per square foot basis. Across all applications and as a portion of overall program administration, it is significant. For these reasons, it was included in the cost effectiveness analysis to help ensure that participation at any level would not erode or detract from the cost effectiveness of the overall program. For illustrative purposes, cost effectiveness of the measures with and without administrative costs is provided in Attachment C.