

To Eric Coffman and Stan Edwards
MC DEP

From Melitta Carter and Bernard Bloom
Mo CO EAQAC

Date May 14, 2011

Subject: Residential Rebate Program

We have been thinking about the residential rebate program and want to amplify counsel that we provided you on Wednesday evening at the last EAQAC meeting. We recognize that you are in the planning phase of this program. This topic was only on our agenda for a status report. Nevertheless, we are sufficiently concerned that we ask you consider our advice. We know you are on a fast track to get this program going so we have not waited for the next EAQAC meeting in June.

Basically, we ask you to keep this one-time program simple. If you make it even somewhat complicated for individual homeowners, you may produce results counter to your intentions.

In this regard, please re-think the need for energy auditors of any stripe for several of the actions that you are considering funding. One category is **HVAC replacement**. You do not need an energy audit to achieve substantial energy savings. All you need to ascertain is that some Energy Star-rated heater or AC unit is replacing a non-Energy Star unit. Insofar as you are contemplating only funding about one fourth to one third¹ of a system's cost, you should be confident that only older systems will be replaced. That means SEER 9 or 10 AC units² and AFUE 80% gas furnaces would be replaced by Energy Star units. This should be sufficient information for you to know that the replacement is substantially energy-efficient.

For you to be assured that this is indeed what the homeowner is actually doing, all you need is for the homeowner to provide you with a mechanical contractor's certification of the model number of the removed unit. There is no need for anyone to pay an auditor to determine this fact.

With regard to attic insulation, there is a similar argument. You need to know the current R-value and the new R value of the attic insulation. This is a simple matter for installers; look at what is in place and how thick that is. You will not be able to know in absolute value terms how many Btu or KWH per year that will be saved with more insulation. But, you can still set **a simple guide**. Insofar as the percent summer heat gain and winter heat loss improvement through the attic is approximately proportional to $\Delta R/R_{old}$, all you would have to do is set a minimum improvement, say 50%, or current code, whichever is the less restrictive.

¹ Here is what we mean, by way of example. In the current marketplace, a 100,000 btu/hr gas furnace costs about \$4,000 (for an 80% AFUE, 100,000 btu/hr furnace) or about \$5,200 (for a 98% AFUE condensing unit of the equivalent thermal capacity.). The \$1,200 differential is about 30% more costly to the purchaser.

² SEER 10 was permitted prior to year 2000; i.e., 11 year old units. AFUE 80% is still allowed.

In both examples, one does not need an energy auditor to ascertain the rebate money would be well used. The use of licensed contractors who have a known fixed address is sufficient.

If you require an auditor you may push away those people who are on the margin of upgrading but who will be put off from acting by the added complexity and cost of an auditor.

Furthermore, if you ask a homeowner to estimate energy savings (if that is one role you have in mind for an auditor), then you will get numbers of middling confidence. Some savings are easy to estimate or at least bound. For instance, for gas furnaces the calculation is straightforward because even for those homes that heat water and cook with gas, the winter heating demand dominates annual gas use. Thus, an efficiency upgrade from 80% to 95% will produce a savings of about 15% of the heating demand. But, for Energy Star AC units, the analogous calculation is not available because of the widely varying other uses of summertime and wintertime electricity.

Therefore, please keep this program simple. Help the homeowner do what you know will work well without putting an unneeded barrier between homeowners and actions.

Thank you for considering our advice.

CC. Paul Bubbosh, chair of EAQAC