



CODES AND STANDARDS ENHANCEMENT INITIATIVE (CASE)

2008 California Energy Commission Title 24 Building Energy Efficiency Standards
January 3, 2008

Follow-on Comments to: 45-Day Revisions to Building Energy Efficiency Standards Workshop Revise Default EER in ACM

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Summary Comments

These comments are in support of the PG&E proposal “Revise Default EER in ACM,” originally submitted in memo form at the June 15, 2007 workshop and submitted as a detailed CASE report at the 45 day Revisions to Building Energy Efficiency Standards Workshop on December 17, 2008. Despite the additional data and statewide savings impact calculations in the CASE report, the overall concept has not changed from the June memo, namely that unwarranted credit is given for EER under the current ACM which effectively undermines the stringency of the prescriptive building efficiency standards.

We think the Commissioners should give serious consideration to updating the default EER for SEER 13 equipment to EER 11 as described in the EER CASE proposal for the following reasons:

1) Excess credit. The problem statement is that the default for SEER 13 equipment is EER 10 in the ACM whereas there is virtually no SEER 13 equipment sold with EER ratings less than 11. Thus credit is given (as much as 7% compliance credit in CTZ 15) for the standard efficiency air conditioner when the EER is rated by a HERS inspection and the performance method is used.

2) Excess credit allows downgrades of other efficiency features. A home that meets the prescriptive requirements of the standard and has a SEER13/EER11 air conditioner would have as much as 7% compliance margin in CTZ 15; this margin can be used to downgrade the prescriptive efficiency baseline of the home

3) Originally presented in June 2007. This problem and this proposal were presented in June of 2007. Sample code language was given then and the topic was discussed with both CEC staff and stakeholders at this time. Six months have expired since this time. The primary change to the proposal is that more data have been uncovered which makes the case for updating the EER defaults even more compelling.

Stakeholders have had 6 months to consider what this change would mean. It would have no impact on those buildings that are prescriptively complying. It would result in buildings complying under the performance method to more closely match the energy costs of a prescriptively complying building.

If there is a serious concern that all parties have not had enough time to consider the repercussions of this change, then we propose that this change to the ACM be adopted with an effective date that is one year or some other fixed time after the adoption of this version of the standard. The industry could either adapt to this changed ACM or develop a coherent argument against adoption of this change to the ACM during this time. There is a precedent for doing this; Section 144 (l) in the proposed standard, “Variable air volume control for single zone systems,” would not be effective until 2012.

4) Prescriptive code basis. The technical analysis is very simple -- we have identified a loophole in the performance method of the standard and have proposed that it be closed. Closing this loophole has no impact on prescriptive requirements. This will of course increase the stringency of performance method compliance that had included HERS verification of EER. If the base case for SEER 13 equipment were EER 11, a home complying with the performance method approach will more closely match the energy consumption of a home that is built according to the prescriptive requirements. Thus if the prescriptive standards are deemed cost-effective and feasible, this should be sufficient justification for matching the ACM more closely to prescriptive compliance. No other technical analysis is necessary.

The performance method is intended to provide maximum flexibility for performing trade-offs between different energy efficiency measures. The trade-off are supposed to be neutral, i.e. the trade-off results in

equivalent life cycle energy cost. Under the current ACM, the EER credit is in excess to its real energy savings impact.

5) Federal preemption. As described in the National Appliance Efficiency and Conservation Act, NAECA USC42 Sec. 6297(f)3C "The credit to the energy consumption or conservation objective allowed by the code for installing covered products having energy efficiencies exceeding such energy conservation standard established in or prescribed under section 6295 of this title or the efficiency level required in a State regulation referred to in subparagraph (B) is on a one-for-one equivalent energy use or equivalent cost basis." The authors of NAECA were not thinking about other metrics of efficiency such as EER but were describing how one would give credit for higher levels of efficiency from a SEER 15 air conditioner. Thus this language is describing how one would get credit for an air conditioner with a higher SEER (that credit based on energy reductions) but this language is silent on how one would define other terms in an energy model (EER rating, presence of an economizer etc.).

Basing the credit on the lowest possible EER is illogical. As manufacturers made lower EER models, the standard would have to continue to degrade efficiency of the base EER. A more logical approach would be to select a relatively low but representative EER for a SEER 13 unit as the basis and to give credit for EERs above this EER. From the ARI Certified Product Performance database there are only 6% of SEER 13 products with EER ratings lower than 11. From our survey of distributors who had combined sales of 100,000 air conditioners, there were no reported sales of SEER 13 equipment with EER ratings less than 11.

If the EER credit alone is deemed to be preempted, an alternative approach would be to allow performance trade-off credit only when the SEER is higher than SEER 13, and still base the credit on a SEER 13/EER 11 base case.

6) California State Policy. In 2003, California's lead energy agencies established an energy procurement "loading order" policy that requires that the electrical energy and demand requirements are met first with energy efficiency and demand response, then with renewable and distributed generation electrical supply before resorting to fossil-fueled generation. (2003 CEC, CPUC & CPA 2003 Energy Action Plan, http://www.energy.ca.gov/energy_action_plan/2003-05-08_ACTION_PLAN.PDF). This policy was enacted into law in 2005 with the passage of SB 1037, 1037 (Kehoe) Chapter 366, Statutes of 2005.

In 2007, the California Legislature enacted AB 32, the state's Greenhouse Gas (GHG) emissions reduction program. This legislation directs the State Air Resources Board (ARB) to coordinate with other state agencies and develop and implement a program to reduce GHG emissions in California to 1990 levels by 2020.

Closing the loophole in regards to EER would be concordance with a number of policy directives on energy efficiency, global warming and electricity supply during peak demand periods. Taking the most conservative of all assumptions, closing this loophole would save over a 10 year time frame approximately 75 GWH and approximately 45,000 tons of CO₂. The high end of the range of savings might be 5 times as high.

7) Duty to faithfully execute the Warren Alquist Act. Section 25402 of the Warren-Alquist Act directs the commission to develop standards for the "reduction of wasteful, uneconomic, inefficient or unnecessary consumption." Clearly a policy embedded in the ACM that allowed a class of buildings that used the performance method to increase their allowed energy consumption would be counter to this directive.

Thus in conclusion we recommend that the Commissioners implement a change in the ACM which would set the base case EER for SEER 13 equipment to the lesser of EER 11 or the EER of the installed equipment.