

Docket Number 08-HERS-1
CBPCA Comments on the California Home Energy Rating System Program
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On behalf of the Board of Directors

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I. INTRODUCTION

The California Building Performance Contractors Association (CBPCA) appreciates this opportunity to offer comments on the Commission's HERS II draft implementation plan. CBPCA is a California HERS Provider as well as the principal designer and implementer of home performance retrofit programs funded by the state's electric and gas utilities. Our experience with comprehensive home energy retrofits includes early research for the Commission's PIER program and PG&E as well as implementation of four utility programs to date with more scheduled for the 2009-11 funding cycle. Our work includes contractor solicitation, training, and field mentoring as well as program marketing and public education, job verification and other forms of quality assurance, and energy savings estimation and reporting. CBPCA is an Energy Star Affiliate and its home performance programs are conducted under the national Home Performance with Energy Star initiative of DOE and EPA. CBPCA is also an authorized Affiliate of the Building Performance Institute.

CBPCA gratefully acknowledges the vision, hard work, and current progress of the CEC Energy Efficiency Division leadership and staff. Much good progress has been made on developing a standardized approach that will be available to facilitate local government initiatives in topics such as time-of-sale home energy upgrade ordinances. Our comments are intended as constructive suggestions on further refinement and improvement of the current draft approach, not just criticism of specific areas of concern. We want this process to succeed and offer our experience to help in any way we can.

These CBPCA comments focus on the portions of the proposed HERS II draft that apply particularly to home performance contractors. Our prior participation in this proceeding has covered most of our concerns with respect to the requirements to be placed on HERS Raters and Providers, with a few exceptions noted herein. Our principal concern is with aspects of the proposed plan that result in substantial market barriers and inequities for qualified home performance contractors, impairing the much-needed upscaling of the home performance retrofit concept in California as advocated in the recent final version of the California Energy Efficiency Strategic Plan.

II. QUALITY ASSURANCE ACTIVITIES

The 12-month re-analysis requirement

The draft includes a requirement for a re-analysis of each job 12 months after completion, including acquiring the utility bill data for that period and assessing and explaining any

discrepancy from the contractor's earlier simulation-based pre-job prediction. This requirement applies only to home performance contractors, but if such a requirement is imposed it should apply to raters when their recommendations are carried out by a contractor NOT trained in home performance. Trained home performance contractors are clearly better qualified to do this work correctly, and experience also suggests that HERS raters without responsibility for doing the actual job are likely to mis-diagnose and specify the workscope incorrectly.

The playing field should be leveled for this 12-month requirement if it is to be required. However, CBPCA feels that this requirement should actually be dropped, both for its cost to the contractor (and customer) and its likely uselessness due to the many reasons that actual post-job performance is likely to be different from predictions. Both before/after weather differences and the many possible changes in occupant behavior are the primary reasons. Such differences apply to some degree in virtually all cases. If the contractor is required to bring discrepancies to the customer's attention, it is all too easy for the customer to blame the contractor for it despite the real cause being something else. Finally, in our experience the prediction of energy reduction by any simulation model for a specific home can easily be off by as much as 50 percent. In the aggregate, over many homes, the average may be reasonable but each home is merely a data point in that aggregate estimate and subject to substantial error, plus or minus. This effect is well known in the impact evaluation community, and such evaluations routinely involve triangulation using several independent methods to offset the variability inherent in each. Such an effort is clearly impractical here.

One may ask: What could be a positive value of a 12-month report on the predicted versus actual annual post-job bills? It would be nice to know whether the home upgrade was cost-effective with respect to utility bills, and it would also be nice to learn what the effect of changes in the occupants' behavior was. But this 12-month recheck and report cannot answer either of those questions due to their confounding effects. We recommend dropping this requirement for lack of value and potential for confusion.

BPI certification

Several parties at the recent CEC review session raised the issue of which BPI certifications should be required. We assume the Commission meant only the Building Analyst certification, since that is similar to the HERS rater certification for existing homes. RESNET and BPI are working now to agree on a joint BA certification, which we must assume will be similar to the upcoming HERS approach. But full BPI (and Home Performance with Energy Star) recognition of a home performance contractor also requires training in proper remediation techniques, and BPI offers separate certifications for heating, air conditioning, and building envelope improvement. Ironically, if only trained home performance contractors are required to have any such certifications, the other (i.e., untrained) contractors who work with HERS raters will be far less qualified. Worse, the homeowner is unlikely to know the difference, thereby placing trained home performance contractors at a competitive disadvantage (better work but higher cost) despite their higher skill levels. We strongly believe this BPI certification requirement is unfair if applied only to home performance contractors.

We also consider this proposed requirement an unnecessary burden on the home performance contractors themselves, and a serious obstacle to the scaling up of home energy retrofit capacity that is so necessary to achieving the ambitious goals of AB32 and the CPUC. Those goals specify major reductions in energy use throughout the housing inventory that would require literally hundreds of thousands of homes be comprehensively retrofitted each year, in comparison with hundreds at present. We now train contractors effectively, and many choose to avoid the BPI certification tests because of their high cost and inconvenience (separately scheduled classroom and field tests at limited locations and times). The BPI certification may be a useful marketing tool—or not—but it does not assure higher quality of work and results.

An Alternative Approach to Quality Assurance

How to assure quality? Make the analyst also review the completed job and report

We also question the scalability of such a requirement in any case.

Our California home performance retrofit programs include contractor qualification (licenses, history, infractions, etc.), extensive training in best practices in diagnostics, estimation, and retrofit work, and business management, customer relations, ethics, and marketing/sales approaches. The national Home Performance with Energy Star program also includes requirements for a thorough quality assurance process. Our current and planned utility-funded programs have similar requirements, so we report compliance to both utilities and Energy Star. These requirements are designed to verify all the key aspects of a home performance contractor's work: appropriateness of the home diagnosis and proposed retrofit, proper installation of improvements, performance improvement of the home, and customer satisfaction. The QA process involves several steps:

- training and BPI testing,
- assistance in creating each contractor's full-capability team,
- a review of all project proposals and supporting data,
- energy savings simulations to report projected savings,
- sampling and retesting of at least 5% of each contractor's' jobs,
- resampling and testing of more jobs when a first sample is judged inadequate,
- warnings, assistance, and ultimately removal from the program for repeat offenders
- Customer interviews to determine satisfaction with all aspects of contractor performance, and follow-ups as needed to rectify all problems

CBPCA submits that this process effectively protects against contractor errors, misrepresentations, and poor installation practices as well as customer complaints. With this process in effect, there is no reason to further burden the home performance contractor with requirements not placed on the alternative rater-led models. This notably applies to the draft's inclusion of a 12-month post-assessment of energy savings requirement only for home performance contractors. Our concerns with that proposal

focus on this inequity and were outlined in an earlier section of these comments. Home performance contractors are in a better position to deliver quality jobs than possible with the independent rater alternative wherein any untrained contractor can do the work without quality assurance. Moreover, this lack of installation quality assurance for the rater model would result in such jobs not being eligible for utility incentives and qualification as an Energy Star retrofit. We submit that rather than unfairly burdening home performance contractors, all independent rater approaches to home retrofits should include a quality assurance component similar to that of the current Home Performance with Energy Star programs in California. And in both approaches, the 12-month post-assessment should be eliminated.

III.CONTRACTOR AND RATER CONSIDERATIONS

More Flexibility Needed in Work Process

In CBPCA's experience as well as that of other home performance programs elsewhere, contractors need to be allowed some flexibility in their approach to the work as long as each job meets the basic requirements of quality, comprehensiveness, and satisfaction. For instance, some contractors find it effective to make some sales based on a visual inspection with minimal testing, without a charge for a full diagnosis. Detailed testing is then done during the actual job and linked to quality assurance and reporting needs. It should therefore not be necessary to do a full formal instrumented assessment before the job sale. The contractor's experience and the attitudes of the clients determine whether this approach works; some contractors use a variety of methods. The CEC proposal's requirement for a full formal assessment and report prior to the job, and even requiring a specific report design, removes the needed flexibility to make the home performance contracting business attractive from a cost and sales perspective. This works directly against the state's need to expand the number of contractors and jobs.

Avoiding the Low-Bid Race to the Bottom

We urge the Commission to consider the viewpoint of the contractors you want involved: How to make it a viable business? Here we support the recent oral testimony of our member contractor Sustainable Spaces, Inc. (incidentally the largest home performance contractor in the state), in which their president argued forcefully to keep quality requirements high but with maximum flexibility and avoidance of excessive barriers to participation for the contractors. We note that with the unverified independent rater approach, as proposed in the current CEC draft, the likelihood is that most of the work will be done by unqualified contractors or unlicensed handymen. This will certainly reduce the cost to the consumer. But the hazards of the unregulated low-bid process far outweigh any such cost savings; it should be no surprise that quality, consumer satisfaction, and energy savings all suffer. All home performance jobs, no matter who does them, should be subject to the same quality assurance rules.

Data Archiving Requirements

We recommend that all assessments and supporting data be required to be kept on file by the contractor (or utility program) for at least three years and delivered if requested, with penalties for noncompliance. In the independent rater approach, the rater should be responsible for either archiving or delivering that data for archiving by others—just as the home performance contractors and programs are now. This continues our recommended principal point: The playing field should be more level for all participants.

Weakness of the Standard Approach

We are concerned about the Standard Approach's total focus on ordering recommended improvements only according to the individual measure's cost-effectiveness with respect only to utility bill savings. We consider cost-effectiveness and non-energy benefits later in these comments, but here we are concerned with the simplistic concept that the relative estimated cost-effectiveness of individual measures is a meaningful way to decide on which measures to include. In general, it is the combination of a variety of shell, baseload, and mechanical systems improvements that create the full value of a retrofit. In particular, in most retrofits all reasonable shell measures (notably air sealing and insulation upgrades) should precede any other improvements, no matter how cost-effective they may appear in a (usually inaccurate) energy savings simulation. The standard approach proposed by CEC obscures that key point.

One improvement to that approach might be to array first the shell measures by cost-effectiveness, then the same for baseload improvements (lighting, refrigerator replacement, etc.), and finally changes in the mechanical systems (DHW and HVAC). But the standard approach should NOT encourage consumers to cherry-pick individual improvements based only on cost-effectiveness. The simulation models are just not accurate enough at that level of disaggregation, and the resulting numbers will be misleading both in accuracy and the underlying logic. Requiring the standard approach is wasteful of time and confusing to the clients; it is far better to allow a choice between the standard and custom approaches.

Licenses and Building Permits

It is important that both raters and home performance contractors be required to assure that a General Contractor's license be involved in all comprehensive jobs. Home performance contractors carry appropriate licenses; the rater should be required to assure that—or to educate the homeowner to assure that—the work is done by a properly licensed contractor.

In addition, home performance jobs generally require building permits in California jurisdictions. Home performance contractors follow this requirement; independent raters and/or their clients should be aware of it too. In many instances this will also trigger a Title 24 requirement for documentation of improvements such as duct sealing and HVAC equipment installations. In the rater model, the homeowner must receive information on this requirement along with encouragement from the rater.

IV. ENERGY SAVINGS AND COST-EFFECTIVENESS

The cost-effectiveness calculation problem

As noted in several ACEEE papers by Knight and others, the standard approach to cost-effectiveness is essentially irrelevant to most potential home performance retrofit customers. Survey results demonstrate that there are far more complex motivations for investment in home retrofits; in a 2006 paper by Knight and Lutzenhiser, fully 80% of the average surveyed home performance customer's motivation was for elements such as comfort, indoor air quality and health, safety, environmental responsibility, and overall peace of mind about the home's condition. And all those customers were well satisfied with the cost and results. This clearly suggests that utility bill savings as the principal (or only) motivation is an inadequate reflection of reality. People buy bundles of attributes, just as they do when buying a more expensive car instead of a cheaper one.

What can be done about this? CBPCA is working with the CPUC and IOUs to change the way cost-effectiveness is calculated, by either using only the share of participant cost that applies to the energy bill savings motivation or explicitly assigning values to all non-energy benefits. Details are being developed in a CPUC-commissioned white paper on market effects (See Ed Vine of CIEE for more information) and the issue will be the subject of a CPUC rulemaking in 2009. Meanwhile, the limited conventional approach to cost-effectiveness should be either eliminated altogether or at least the marketing of the HERS II process should include illumination of this point for homeowners.

Energy Simulation Modeling

There are real problems with home energy simulation modeling, and those problems must be faced in the HERS II proceeding. As noted earlier in these CBPCA comments, the potential for error in such modeling persists—and despite all BesTest efforts. There are simply too many factors in the explanation of energy use for any model to encompass (that's why they are called models) and even when total energy use matches utility bills, which is rare, the underlying disaggregations of energy uses by application are always questionable and virtually unverifiable. We urge CEC to allow an alternative: manual bill disaggregation based on test and inspection results for identifying best opportunities for saving energy. We teach manual disaggregation to our contractors and find it easily learned, applied, and more accurate than models.

Apart from the inherent inaccuracies of models, another problem exists with modeling inputs (energy savings and costs): The Database of Energy Efficiency Resources (DEER) contains many inaccuracies in both costs and energy savings despite the extensive and sophisticated efforts that went into its creation and its recent update this summer. Since most of its results were based on fragmentary data and simulation modeling, this is not surprising. Also, its results are based on reported averages and do not reflect high-quality work and the interactive effects of multiple measures. We greatly prefer actual contractor or experience-based costs rather than published estimates like DEER. At the very least, all users of the HERS II should be clearly instructed in the limitations of such data.

V. CUSTOMER EDUCATION AND DISCLOSURES

Avoiding Buyer Remorse and Negative Market Effects

It is crucial that program designers recognize the buyer disillusionment likely from a prescription and "cost-effective" priorities based on lack of building science experience, bad data, and inaccurate simulation results, followed by a contractor who either does poor work or refuses to abide by either the prescription or the cost estimate. The rater must guard against poor work by educating homeowners on qualified contractor selection and must also work with contractors to gain trust in the rater's competence so that the contractor need not protect him- or herself by redoing the testing, diagnosis, and pricing.

We also note the need for improved enforcement of Title 24 quality specifications by both raters and home performance contractors. Both should be required to educate buyers on the need to abide by those specifications. All raters and contractors should be required to provide buyers with a standard sheet or brochure on how to get a high quality job and results.

A customer complaint mechanism is required, such as that used in Home Performance with Energy Star programs. It requires that all complaints be reported and satisfactorily settled. Information provided in all customer marketing should include that process.

Similarly, customer education information should include details on all relevant utility incentives and procedures for obtaining them. Raters and contractors should be required to provide such information in writing as a part of a general information package including the other items listed above.

VI. CONCLUSIONS

CBPCA respectfully offers these comments in support of further improvements to the already good draft HERS II regulation. We reiterate our support for the HERS II concept and congratulate CEC for its good progress to date despite the limited staffing available and their many other time commitments. We will be pleased to provide further clarifications of these comments if needed, and will provide further assistance at the option of the Commission staff.

Respectfully submitted,
CALIFORNIA BUILDING PERFORMANCE
CONTRACTORS ASSOCIATION



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