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Comments to the CA Existing Buildings Energy Efficiency Plan

Additional submitted attachment is included below.



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April 21, 2015

California Energy Commission
1516 Ninth Street
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Re: Docket Number 15-IEPR-05

Dear Commissioner McAllister and Mr. Ismailyan:

CalCERTS, Inc. (CalCERTS) applauds the California Energy Commission (CEC) for developing the *CA Existing Buildings Energy Efficiency Action Plan* (the Plan). The Plan provides clear guidance for a number of essential programs and actions that will provide energy use reduction; public awareness of the need for reduction; job creation; and unification of efforts from many different sectors that have not seemingly, to date been coordinated; and other benefits.

As a an approved Home Energy Rating System (HERS) Provider, CalCERTS is pleased to submit these comments and suggestions from our perspective on the HERS industry which is based on over 10 years of history training and certifying HERS raters through an ANSI-accredited program; collecting data on over 100,000 ratings of new and existing homes; advising the CEC on Title 20 and Title 24 codes and compliance; working with utilities in developing funded programs; and in working with community colleges to bring HERS training and certification to colleges; and finally through doing Quality Assurance on HERS raters to assure that their current activities still meet code requirements.

Respectfully,

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Comments of CalCERTS, Inc. to the *CA Existing Buildings Energy Efficiency Action Plan*

Introduction

CalCERTS supports the goals stated by Commissioner McAllister in his message at the beginning of the Plan document. As he states, “But California is not on trajectory to meet the aggressive energy efficiency goals set in the 2008 Long-Term Energy Efficiency Strategic Plan”.¹

CalCERTS will make suggestions and comments concerning several sections of the Plan such as:

- Building Energy Efficiency Standards (BEES or BES);
- Local Government (LG) involvement;
- Installers;
- Necessary data currently missing from the market that could much more persuasively support some of the Plan goals;
- Streamlining code compliance;
- Workforce development;
- and Real Estate industry involvement

Our comments below are referenced to the chapter and page of the Plan document. These are the main subjects that CalCERTS will address. For more information please contact Barbara Hernesman, Director of Workforce Development, barbara@calcerts.com.

¹ CPUC, 2008 Long-Term Energy Efficiency Strategic Plan, 2018: www.cpuc.gov/PUC/energy/Energy+Efficiency/eesp.

Plan Chapter 1. Introduction

CalCERTS strongly supports the high prioritization of addressing the “application, compliance and enforcement of building standards in existing buildings”, as stated on **p. 7** of the plan. More detailed comments will follow later in these comments.

Code-as-Baseline also, on **p. 7**, states that programs funded by rate payer funds are generally only applied to “above code” programs. Above code programs have a lot of merit, and have brought substantial savings over the years. Although CalCERTS understands that it is intrinsically counterintuitive to “reward people for doing what they should already be doing”, there is a general consensus in the communities that only 10% or less of jobs are permitted, and therefore inspected. CalCERTS suggests that the strategies employed would include funding for “to code” programs. The better technology available for online permit acquisition (more comments below), and new technologies in field verification and diagnostic testing of installations provide a major way to address the sustainability of improved code compliance in the future after programs have worked out the details.

Goal 1: Proactive and informed government leadership in energy efficiency

Strategy 1.3 Minimum Standards for Building Performance Assessment Tools

CalCERTS strongly supports Strategy 1.3.2 which calls for alignment of the Plan, and the Title 20 rulemaking under way currently. The “HERS II” name is actually a nickname for Whole House Whole Home Energy Rating System. This system was developed 5 years ago, and for a particular purpose responding to some program requirements and to stakeholders who had different expectations. The current HERS II system needs to be completely reconceived and implemented. But CalCERTS firmly believes that properly designed and implemented, HERS II has a place in the assessment processes going forward. Some feel it is not appropriate for anything other than an asset rating, but HERS II was actually designed initially to provide recommendations for cost effective energy efficiency upgrades. CalCERTS suggests at least a thorough review of what exists so that the worthwhile components of HERS II do not get ignored in the recasting of Title 20.

Strategy 1.4 Adopt Uniform Asset Ratings to Compare Building Properties

CalCERTS supports the standardization suggested in Strategies 1.4.1 & 1.4.2, especially if done with full stakeholder involvement, and with an overall goal of establishing an approach that is sustainable at least some time in the future.

Strategy 1.5 Building Efficiency Standards Development and Compliance

This is an extremely important strategy. There has been a lot of resistance to the tracking of equipment sold in the state, but there have not been a lot of good arguments against this practice. California is years behind in acquiring data that could have been available already. There is still significant resistance to this process, but it is absolutely essential to making informed decisions moving forward. The strategy in the Plan incorrectly states that there is “no mechanism to...verify that the installed equipment is field verified...” This is, in fact not true. There are two mechanisms for field verification of both health and safety concerns, and energy *performance*. The first method, of course is the building inspection departments of the LG’s; and the second is third party verification by a certified HERS rater. Both of these mechanisms, however, require the pulling of a permit, so the mechanisms are there...they are just not being utilized adequately. Much of the objection in the past has been a lack of resources at LG’s, and unwillingness by market actors including manufacturers, distributors, and installers to support pulling of a permit. New technology does not remove all of the cost to these entities, but they are dramatically reduced. But the Plan has strategies to address this situation, and CalCERTS strongly supports all strategies in Goal 1.5, but especially 1.5B

Strategy 1.5 B BES Compliance Improvement for Existing Buildings

1.5.2 Review Cost Effectiveness

1. New automated data-transmitting field diagnostic equipment can greatly reduce costs involved with field verification and diagnostic testing through the use of cloud technology and provider registries. These methods, already being tested, can reduce the cost of the field verification and diagnostic test and can also reduce the amount of QA needed to ensure confidence that raters are doing the ratings properly

2. Decisions and evaluation of measures and cost issues should be weighted in terms of
 - a. Dollar cost vs energy savings
 - b. Ease of implementation of measure vs probability of use and outcome
3. The HERS Building Performance Contractor program developed by the CEC in 2009-2010 and implemented by CalCERTS offered time and cost effective solutions to problems identified by the contracting community and the IOU's. The solution had some difficulties, but it should be re-examined to see if there is still a place for it based on current needs and assessments..

1.5.3 Training and communication

1. There is already a statewide credentialed workforce that verifies compliance, but does not have authority to enforce.
 - a. Solution: Through a pilot program with local governments and HERS Providers, develop a workforce that can facilitate compliance enforcement for local government programs and jurisdictions.
 - b. Further training and education could develop the existing workforce into a compliance workforce.
 - c. Since local governments are critical to enforcement of the BES, the local governments need to be educated and given tools to provide data that will lead to better enforcement.
 - d. Once the local governments have been educated, they need to utilize the credentialed workforce to facilitate the compliance and enforcement of the standards
 - e. Data needs to be collected so regulators can assess best practices, do cost effectiveness analysis and fill gaps in information not yet being acquired

1.5.5 Compliance Shortfall

1. Need to remove barriers to contractor wanting to pull permit due to logistic difficulties
 - a. Need to make permit pulling an online process available to many users,
 - i. Permit pulling by HERS raters should not be a conflict of interest
 - b. A uniform statewide permit application would be helpful
 - c. Should determine if a CF-1R could act as a statewide permit

2. The permit assures that a proper installation has been done by the contractor, but it needs to be so easy to acquire a permit that there is no reason not to pull one.
 - a. The need to forego a permit because the health-impaired customer needs an HVAC system, and it is Saturday, and the building department is closed goes away with online permitting.

1.5.8 Serial Number Tracking

Developing a SNT database is a needless and extra expense. The technology and availability of this process is essentially already in place with the HERS registries. If some form of access or reporting of this data is desired, it would be much easier, more costly, and faster to achieve through these existing entities.

Strategies 1.5.5, 1.5.6, 1.5.7, and 1.5.8 are listed as individual strategies, but they are better characterized as separate tasks in an overall program. The four strategies are interdependent, and can be, for the most part run concurrently. In the case of Serial Number Tracking (SNT) (strategy 1.5.8), the data will take some time to accumulate, since it is dependent on the time it takes to distribute and install units across the state. Yet, it is critical to informing strategy 1.5.5 regarding the compliance shortfall. But SNT alone is not enough to be the sole input for a comprehensive compliance plan. Removing barriers to permit pulling is equally important, but fortunately, technology helps here by taking the personal appearance at a building department permit counter out of the equation. That is not to say that a permit could not be pulled over the counter, just that it could be done either way. This can also be implemented in a staged fashion so best practices can be developed and vetted. Strategies 1.5.5-1.5.8 are components of an overall program that could be condensed into one well-designed program.

Goal 3: Building Industry Delivers innovation and performance

Strategy 3.1 Streamlined and Profitable Industry

This strategy rightly identifies the need for a robust efficiency marketplace facilitated by providing support to contractors and other solution providers. But this ignores the substantial (but so far undocumented) “Do-It-Yourselfer” (DIY, DIY-er). CalCERTS suggests that the DIY market could be addressed by working with the large, “big box” home improvement chains to provide DIY programs that allow for incentives, and that would contain a component of verification of correctly installed measures through a third party verifier. This would not be the building department, which would save

cost. A third party verifier could be a HERS rater, or some other similarly trained and certified person.

Although a lot of DIY-ers do not do HVAC installations, but do a lot of weatherization and low-tech energy improvements (adding insulation, tightening duct leakage, etc). This process could also support Make, Model and Serial Number Tracking through simple, inexpensive data collection that the state can use to enhance its understanding of the overall energy efficiency market. CalCERTS suggests that this would be a very simple process that is not as difficult as the current HERS process and data registries.

Strategy 3.2 Performance-Driven Value

Strategy 3.2 talks about Feedback Practices. Seeking long term performance is necessary to ensure that AB758 goals are not only met initially, but maintained throughout the life of the equipment. While Smart Meter data can be helpful, it does not, in and of itself, provide sufficient information regarding the energy savings to determine how much is attributable to behavior and how much to performance level of the equipment. Thus, Smart Meter data should be used as a tool to identify property candidates for further onsite investigation. For instance the Smart Meter data could identify the top 5% of properties where efficiencies are showing marked improvement, and then visits by technical people and behavioral people could determine the correlation between the performance of the equipment, and the behavior of the occupant(s). And, of course the Smart Meter data could also inform the bottom 5% of properties for the same purpose.

Strategy 3.2 also talks about Performance Based Incentives. Innovative and effective incentive programs are part of the solution, but have not been as fully effective as is needed to meet the ambitious goals of the Plan. Rather than determining the incentive based on the efficiency determined after the fact which is a very high risk proposition for an installer due to unpredictable occupant behavior, the incentive could be paid based on the “absolute performance” of the installation. Then, regardless of the behavior of the user, the good or bad behavior is occurring on equipment that is *performing* at a verified value.

The behavior factor is not to be ignored, but it can not be predicted, and it constantly changes, so installers may be reluctant to rely upon this for incentive payments. Since behavior is not predictable, especially when multiple occupants over a period of months or years is inevitable, maybe trying to find a way to reward good behavior of the consumer would be worth exploring. For instance, Sacramento Municipal Utility District (SMUD) customers can voluntarily install a limiting device on their HVAC system to help stem high use during peak load periods. This might also provide an opportunity to incentivize the use of communicating thermostats directly to consumers.

However, if incentivizing the contractor is still one of the programs deemed useful, then CalCERTS reiterates that the HERS Building Performance Contractor model can help satisfy this option, assuming that it is streamlined and brought into alignment with current methods and goals.

Additionally, Strategy 3.2 talks about Certifications and Assurances. These two words actually form a complete process. Certifications, if properly earned provide assurance that the person certified knows a certain body of information, has a certain set of skills, and understands the application of the information. Putting aside for a moment the fact that the 2013 BES were very complex, and were a large jump from preceding BES, there are an enormous number of market actors who really do not understand Title 24. But there are some who do, and who routinely implement and follow the codes when doing installations or inspecting installations. The purpose for credentials is to assure the community that a holder of these credentials can reasonably be relied upon to follow code, or at least understands code and can convey its benefits to those who may be doing retrofits, upgrades or maintenance of buildings. The credentials should apply at least to firms who employ workers and manage them to make sure good practices are being employed. But firms do not have the manpower to watch over every single installation, so credentials of the general workforce allows employers to identify people who have demonstrated proficiency and can be found easily by looking up their credentials.

Strategy 3.3 High Performance Workforce Education and Training (WE&T)

Strategy 3.2 Performance-Driven Value

CalCERTS supports this strategy on the basis that it correctly identifies needs that have not yet been met in the overall energy efficiency community. WE&T requires curriculum and training programs that have been designed based on a rigorous, industry-vetted Competency Model. A proper Competency Model recognizes the need to define, educate, train and assess essential industry and job specific technical competencies. The Competency Model must accommodate the Job Task Analyses (JTA's), the Knowledge, Skills and Abilities (KSA's), Demonstration of Practical Skills, and the Curriculum, and the Learner Assessment so that it can conform to a credential indicating competency.

Strategies 3.3.1 & 3.3.2 Performance-Driven Value

However, seeking WE&T for “High Performance” buildings, or developing “High Performance” WE&T training requires first understanding what “High Performance” actually means. Additionally, for development of curriculum and practical skills training, “high performance” will at some point need to be *quantifiable*. Governor Brown said in his Global Warming Solution Act Scoping Plan that, “Beyond code efforts are basically measures that can be adopted as mandatory at the local level, but, they are more progressive than the minimum mandatory provisions outlined in building codes. In some cases, cities are adopting ordinances to exceed the Energy Code by fifteen or thirty percent”.

Another very basic, but possibly sufficient definition of “high performance” is anything that is more in-depth, or broader, or advanced than the basic “Knowledge, Skills and Abilities” (KSA’s) deemed necessary for a worker to be sufficiently capable to install, replace or maintain equipment or systems, including building operations at the basic code level.

In the case of equipment changes, replacements or new installation (aka, changeout/alteration) in an existing building, the KSA’s are basic and well-understood by industry workers. In this market, installing to code and following the permit and inspection process, including the HERS rater should constitute the baseline. Then, “high performance” WE&T could relate to doing or knowing more than the basic code installation dictates. Some KSA’s “high performance” WE&T are making sure the equipment is not oversized; ensuring adequate airflow; adjusting for correct refrigerant charge; and educating the consumer as to best operating and maintenance practices; advising consumers regarding best processes. While it seems that maybe these things should be done anyway, it is evident that the workforce does not necessarily conform to these “basics” of installation, and could certainly benefit from further WE&T.

CalCERTS, through its more than 10 year association with the design, installer and verification industry sectors related to energy efficiency programs, codes and enforcement has learned that workforce engagement in programs, codes and enforcement is heavily contingent on the degree to which all the sectors feel they have had input into the process. In order to be effectively deployed, Strategy 3.3 must engage a purpose-focused representation of industry stakeholders who can advise and vet the JTA’s and KSA’s and consequently the curriculum development. CalCERTS believes that Strategies 3.3.1 and 3.3.2 properly address these issues.

CalCERTS advocates inclusivity for scaling Workforce Education and Training Public and Private Accredited Training Programs and the credentialing of building performance professional workforce.

Scalability and sustainability of this high performance WE&T will require a broad approach to delivery systems that are consistent with the curriculum content; the industry sector being addressed in the curriculum, and the reliability of the deliverers. Online training, community colleges, and private companies must all be part of the delivery system to meet the widely distributed workforce. Accredited training organizations are the best way to address these issues and bring credibility to the resultant trained workforce. Workforce credibility has been identified by some of the industry sectors such as Building Operators, Unions and others as a real problem in finding properly trained workers that will actually bring the energy efficiency and quality of installations that these organizations need.

Strategy 3.3.4 Performance-Driven Value

Strategy 3.3.4 rightly identifies Efficiency Marketing as something that is missing currently, but could certainly be part of the definition of “high performance” WE&T. Efficiency Marketing will only be effective, however, if it is accompanied by recognizable, accessible, and credible workers who can deliver the results marketed.

CalCERTS agrees that Quality Assurance (QA) programs are necessary to provide the credibility needed to bring success to the marketing efforts of contractors and others. Finance providers will also want some assurances that what they are financing has the value stated. Based on the past 10 years of experience with various QA models developed by the CEC, CalCERTS recommends that a balance between cost and effect be a guiding principle in the development of QA programs through the concurrent development of Quality Control (QC) protocols aligned with the expectation of the completed work. This will by necessity require the inclusion of market actors who will be subject to QA, and those who will be running QA programs or protocols.

The concept of (QC) almost never occurs in any discussion about QA. This has in the past, and up until today, created a problem in developing QA programs that are implementable, and cost effective. According to various sources, QA is the set of processes used to measure and assure the quality of a product, and QC is the process of meeting products and services to consumer expectations. Quality Assurance is process oriented and focuses on defect prevention, while Quality Control is product oriented and focuses on defect identification. QA must, therefore, have something to “assure”, and that something is that QC processes have been met. CalCERTS suggests here, as well as in the Title 20 OII, that QC protocols developed so they can be implemented by the workforce, thereby decreasing the widespread and uneven application of Quality Assurance programs. The QC protocols will need to be vetted in different ways for different market sectors. But the QC protocols can and should be part of the “high performance” WE&T.

Conclusion

CalCERTS appreciates the opportunity to provide comments on the draft of the *California Existing Buildings Energy Efficiency Action Plan*. CalCERTS looks forward to engaging further with CEC, CPUC and other stakeholders to help shape and implement programs that will bring Governor Brown's objectives closer to realization.