DOCKETED	
Docket Number:	23-HERS-02
Project Title:	Whole-House Home Energy Rating and Labeling Pre-Rulemaking
TN #:	254517
Document Title:	CalCERTS Comments on Whole-House Program RFI
Description:	N/A
Filer:	System
Organization:	CalCERTS, Inc.
Submitter Role:	Other Interested Person
Submission Date:	2/16/2024 9:47:19 AM
Docketed Date:	2/16/2024

Comment Received From: CalCERTS, Inc.
Submitted On: 2/16/2024
Docket Number: 23-HERS-02

CalCERTS Comments on Whole-House Program RFI

Additional submitted attachment is included below.

February 16, 2024

CEC Docket 23-HERS-02

CalCERTS Comments on California Energy Commission's Request for Information on California's Whole-House Home Energy Labeling Program

CalCERTS has administered the California Whole-House Home Energy Rating program in California as a HERS Provider for many years. Information on the scores, the Raters, the application and software, and quality assurance reviews have been provided to the Commission as part of the program administration requirements. CalCERTS supports this program update and welcomes CEC staff to meet with our technical team to answer any specific questions.

Issues that need attention under the current program include:

- Software maintenance and support by both the CEC and third-party vendors
- Accuracy and upkeep of the databases/resources used to determine cost measures and cost-effectiveness.
- Accuracy and upkeep of equipment libraries
- PV calculations
- New versus existing home program objectives

Pilot Program

In 2019 CalCERTS was asked by the CEC to work on a pilot program with CEC Programmers to assess the use of CBECC-RES to generate HERS Index Scores based on the ANSI standards adopted by RESNET. As the largest and most respected national program for promoting consumer awareness of energy efficiency, RESNET was the ideal partner for this pilot program.

The CBECC-RES pilot software leveraged the strength of approved California energy modeling software and the programming and code expertise of the CEC. The software was dubbed CBECC-RESNET. Through the software, users had additional inputs that were not included in the traditional state-approved software. The data input into a CBECC-RESNET energy model was translated using RESNET's energy calculation algorithm to produce a RESNET Index Score.

Some benefits of using the Pilot software:

- Use of a software interface that is familiar to California energy modelers. We identified and added the inputs that were missing and required to produce a RESNET Index score.
- Energy calculations were based on California's energy policy and software allowed the appropriate amount of granularity to reflect California's robust energy code. California energy modeling software is often more specific with more data inputs than other RESNET-approved software.
- Allowed for an apples-to-apples comparison of California homes to the national standard as both are tied to an IECC 2006 model home. *This was very important*.
- Because only one software platform was used, the likelihood of a constructed home reflecting what is on the California energy plan was significantly more likely. Using multiple software platforms can introduce data entry errors and potential translation issues. With a single platform, all stakeholders are held to a single standard that was produced through the California energy code and then translated into a RESNET Index Score.

Where the Pilot needed more support:

- RESNET has multiple approved software providers. Each operates under the approval of RESNET and must align with a specific threshold of accuracy. The Pilot software (CBECC-RESNET) initially failed in its ability to produce comparable RESNET Index scores when compared to other approved software. This was of particular significance when PV (solar) was introduced into the energy model. This was by far the most significant failing of the Pilot software. In an environment where a single point or two in the RESNET Index score scale can make a difference in builders being approved for special programs, the Pilot software was sometimes incorrect by ten or more points. There needs to be consistency. This could have been overcome if there had been more support and response from the team involved in writing the software and then translating the results into a RESNET Index score. Other CEC programs took priority delaying focus on this effort.
- Turnaround times for software bug fixes were significant, sometimes measured in many months. Stakeholders operating in a competitive business environment can't afford to invest in a process that is not being supported in a timely manner.
- Where in most cases, California energy modeling software is more specific than RESNET, there were aspects of RESNET modeling that were simply missing in the Pilot software (ex. ceiling fans).
- In California energy modeling is performed prior to construction. When this model is translated into a RESNET Index score, it can only be used as a "threshold", or minimum standard. The Pilot software did not allow as seamless a process as some RESNET-approved software platforms such as Ekotrope or REM/Rate to update the score to reflect the home "as-built." Because much of the RESNET community produces "confirmed

ratings" or "as-built" an energy model for a specific home is adjusted on the software platform and immediately submitted for certification. To achieve the same with the Pilot software, the user would have to update the model in stand-alone software and upload it to the registry. While this was not a significant issue, it's something of note. California RESNET Scores were guaranteed "as good or better" than the verified score.

- With regards to the difference or confusion between California and IECC climate zones, it was less of a problem than stakeholders thought. This was easily corrected when the Pilot software forced the user to a specific IECC climate zone upon inputting a zip code for the project.
- The pilot software being separated from the official compliance software made the process far more difficult than it needed to be. While this could be corrected should the whole house or RESNET be incorporated into official California modeling software, it is something important to note. If the CEC designs a labeling program based on CBECC-RES it must support it with each revision and not separate it from the current operating version.

<u>Benefits of the Whole-House Program in California referencing a National Standard:</u>

- Allows builders to demonstrate a tangible benefit of energy features. Because the home is compared to a nationally accepted standard, homeowners would be able to compare a home's energy efficiency to other homes in the US.
- Builders will view energy efficiency as an advantage and not just a compliance requirement. By being able to directly compare with other homes, energy efficiency can become a financial benefit.
- The RESNET HERS Index is widely accepted as the standard and used by realtors across the nation. Lenders have taken notice after a study showed Energy Star labeled homes with a better HERS score have a 32% lower mortgage default rate.
- HERS Raters performing RESNET inspections in California are conducting verifications of energy code features typically delegated to AHJs. This allows for a second set of eyes on energy code compliance for features such as windows, radiant barriers, lighting, etc. Through this process, the energy code is more consistently and thoroughly inspected for Californians better ensuring the benefits of the code.

CalCERTS offers its technical team and expertise to support the CEC in this update of the California Whole-House Home Energy Rating Program.

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