PERFORMANCE SYSTEMS DEVELOPMENT

Thank you for the opportunity to provide comments to the Existing Buildings (AB 758) Scoping Report and Staff Workshop. (Docket number 12-EBP-1)

Performance Systems Development (PSD) is a national leader in supporting whole building programs and specifically involved in the creation of standards, software, training and programs to support residential, multifamily and commercial whole building programs. PSD has proposed and help develop national standards for residential software testing (RESNET), energy model calibration (RESNET and BPI) and data transfer (BPI), for example. I have personally participated in these efforts and also provided national leadership for the development of residential whole building programs as the national chair of Efficiency First, board chair of Affordable Comfort Inc. and as the developer of the first Home Performance Program in the country in 1995 in New York State.

PSD recognizes California's leadership in whole home performance based programs and we have been a party to those efforts in helping to establish the CBPCA, developing the first whole building curriculum for CBPCA and BKI, and in supporting various programs over the years including currently the PG&E Energy Upgrade California program and the CEC Energy Upgrade California Multifamily Initiative.

Responses to the CEC AB758 Existing Buildings Scoping Report Questions

Residential Energy Upgrade Programs

1. What customers are choosing building performance upgrades today? Where are the opportunities for scaling upgrades?

The upgrade process self-selects for high use homes. The process also self-selects for homes with an ability to pay for the retrofits including the risk required to obligate the building owner to a loan payment. In order to avoid issues The development of alternative calculations, such as "Flexpath" should include the ability to quickly correct deemed savings estimates to the energy intensity of these higher energy use homes, ideally preferentially identifying and targeting the primary source of their high usage (heating, cooling, non-temperature dependent loads). In depth retrofits will still be driven by a more comprehensive diagnostic process. Streamlining the performance path should remain a priority, even with the expansion of alternative approaches.

2. What value do building assessments bring to the homeowner and/or contractor? What should be their role in upgrade programs?

The assessment process should be driven by the diagnosis of the problems in the building and not by the asset scoring of the building. The scoring of the asset rating should be generated as an outcome of the retrofit process and not the other way around as it is in the current EUC program performance incentive model. This could be done easily via the DOE Home Energy Score which provides an Application Programming Interface (API) for sending data from a range of retrofit modeling tools into the scoring system. The degree of data collection is in line with other retrofit oriented data collection approaches. The use of the API to generate a score is compatible with the market based approach for the selection of software that fits the business model of the contractor or auditor.

3. What is the role of rebates in efficiency upgrade programs? How can financial products/financing strategies motivate deeper retrofits in lieu of rebates? Are both needed to motivate deeper retrofits?

Rebates are an effective way to temporarily stimulate consumer investments in efficiency, just as they are in cars and appliances. But rebates need to be maintained at a more sustainable level and combined with financing to create more sustainable mechanism for accessing incentives. Creating sustainable access to financing outside of the CPUC program funding cycles is critical. Financing will likely become even more important if we are able to more accurately predict the actual savings for the current owner of the home being retrofitted. This operationally accurate prediction of savings is at odds with a process that is centered on the delivery of an asset rating. The process should be reversed. Operational predictions of savings and performance should be converted into asset ratings at the end of the retrofit instead attempting to impose the rating process on the utility programs.

4. How can "reactive" interaction with customers (e.g., HVAC tune-ups or water heater replacements) best be leveraged to encourage whole house upgrades? How can such customer interaction encourage or enable future upgrades?

There are actually two parties to be leveraged. Homeowners need to be encouraged to think about deeper retrofit through social marketing efforts and the coordinated (or coop funded) marketing of whole house contractors creating broad understanding of the savings and performance potential of high performance homes. But perhaps more importantly, the contractors not currently participating need to gradually become increasingly engaged with performance testing and whole house retrofits. Clear and step by step pathways into whole house need to be articulated to contractors. The consistency and sustainability of programs needs to be demonstrated to these contractors. Many contractors are reluctant to change their business model to more extensively work with utility programs when the programs have the short term life as has been the case in California. Simple rebate programs do not require business model changes to work for contractors that are adverse to the risk of changing their business model and will remain where these contractors participate until the process is streamlined and made consistent over time.

5. What milestones and metrics are most appropriate for measuring success of programs to motivate upgrade activity? Against what criteria or guiding principles should potential AB 758 program initiatives be assessed and prioritized?

Improvements in realization rates are important to create more secure funding streams. Improvements in realization rates can also help with improving building owner trust in savings predictions which will help support the transition to greater dependence on more sustainable financing incentives. Tracking the market penetration of performance tested retrofits by contractors who have not yet transitioned to whole house solutions helps show the movement of the market towards performance tested whole building retrofits.

6. How can quality assurance be provided without excessive impact on the customer experience?

Contractors should be allowed to play into lower levels of post inspection through successful post inspections. Energy model calibration should be used where possible (when energy usage are available) to put boundaries on the base line (pre retrofit) simulation models. This can significantly reduce QC required prior to pre-approval of performance path incentives.

Residential Ratings

9. Under what conditions would it be appropriate to include an energy rating in an upgrade project?

The rating should be an outcome at the end of the retrofit process and not be allowed to dictate the process.

10. At what other points in the life of a building would an energy rating be desirable?

The less expensive the rating the more broadly it can be used. A less granular rating may have a very similar consumer impact in existing homes relative to the current highly granular HERS II rating. This needs additional study before investing in more expensive ratings that may not provide much additional value in existing homes.

11. What market barriers exist that limit the growth of the voluntary market for HERS ratings and assessments? Is there a role for ratepayer or public funding to overcome these barriers, if so, what level is appropriate and commensurate to benefits?

Reducing the cost of the rating by cost engineering the process is more cost effective than increasing public subsidy for the ratings.

12. Is there a role for HERS providers and HERS raters in the whole house upgrade programs offered by utility providers or in financing offerings supported by public dollars?

Yes, but not a mandated role. The audit business model is a great way for individuals to develop diagnostic skills but is unlikely to produce the investments in business capacity necessary to take the market to scale.

13. What improvements could be made to the California HERS program and its use in utility whole house upgrade programs?

Use an adaptation of the DOE Home Energy Score, adjusted to be more compatible with the current new construction focused scoring system, but at a lower cost and better integrated with a cost effective retrofit diagnosis.

Residential/Nonresidential Data and Information Decision Support Initiatives

19. What can be learned from the California Solar Initiative (CSI) online database experience that can be extended to energy efficiency upgrades?

Common data structures are critical to expanding knowledge and continuous improvement of the retrofit and program process. Common data structures have the potential to reduce program overhead on the contractors and consumers. There are multiple overlapping incentive opportunities being managed by contractors and consumers. These incentive programs all need to use a common data language, HPXML, to describe the retrofit transaction related information, including rebate form data. Data collected in the retrofit process should be able to be used to accomplish multiple tasks.

20. What are the major barriers to accomplishing comprehensive data collection and centralized public access to market data?

Combining energy usage data pre and post with energy improvement information is critical and Green Button Connect is providing major support for this effort.

21. What safeguards exist for protecting consumer information while still allowing access to data?

The ability of customers to easily share energy usage data with their energy services provider is critical. There may be concerns in more broadly sharing smartmeter data.

Monthly data can also be of high value if the more detailed data becomes a privacy issue.

23. What emerging initiatives hold promise to utilize smart meter data to inform decision making by homeowners/business owners/contractors/financers?

Smart meter data contains additional information for potential analysis. The long term lack of access to even monthly usage data has been a major impediment to the evolution of the energy efficiency industry. If access to smart meter data becomes an issue, monthly information is a viable fallback. Contractors having secure access to their customers' usage data and the ability to readily weather normalize energy usage are keys to being able to create accountability for savings information.

Additional Questions:

33. What is the proper role for regulations to achieve energy efficiency through AB 758? What are the appropriate points in the life of buildings (trigger points) where regulations could be applied?

If expense of obtaining an energy rating for an existing home can be cost engineered down then the rating could be regulated to be more extensively applied. Requiring a more expensive and more time consuming rating process will reduce the value of homes by making the home sale transaction more expensive and complicated and therefore encounter strong stakeholder resistance.

34. How could the real estate industry play a role to encourage assessments, rating and upgrades as a means of differentiating homes where owners have invested in upgrades?

Make the rating less expensive and more readily available for existing homes.

35. Should non-energy benefits (NEBs) be recognized in cost-effectiveness criteria for an upgrade program, and if so, how? Are there important distinctions between ratepayer-funded and other publicly funded upgrade programs in how NEBs are addressed?

Whole building programs intentionally leverage building owner interest in NEBs to help drive investments in performance and therefore improvements in efficiency. This is a win-win scenario for the building owner and the contractor. The inability of the current cost tests used by utility programs nationally to separate out the participating customers' investments in efficiency from their investments in non-energy benefits is a travesty.

36. What process improvements or funding solutions would facilitate better compliance with the Building Energy Efficiency Standards? What actions could be taken to encourage contractors to pull permits?

A simplified compliance/rating process would reduce the concern of contractors that the code process will delay or derail their work process.

37. How should building energy simulation software be used to make recommendations for energy upgrades? How could actual energy use, before and after the upgrade, be considered?

Ratings should be a byproduct of the retrofit modeling process. This allows operational pre retrofit models to be built that can be calibrated to or bounded by the normalized actual energy use of the building. The BPI-2400 standard was designed to support such a process. A retrospective study of the effects calibration can be conducted using the current utility program databases. The utility proposed process for opening up software will also be facilitated if a standard rating process can be accessed via an online API. Ratings will be consistently delivered while software can support a wide range of business processes.

38. Should California pursue a "HERS-lite" rating option (see page 65 of AB 758 Scoping Report)? Could this be used as a screening tool? How could it be used?

A DOE Home Energy Score based rating, with a scoring regime adjusted to be more directionally compatible with the current new construction ratings in California could be used for existing buildings that are not very low energy buildings (where more detailed modeling will be necessary as it is in new homes). Screening implies that the rating might be generated before retrofit. Operational benchmarking, such as the existing EPA Home Energy Yardstick, is a more effective pre retrofit screening tool than a "lite" asset rating. A lite asset rating could be an outcome of a retrofit without significantly increasing retrofit costs. A lite asset rating could be effectively applied at time of sale where it might help in encouraging investments in efficiency.

39. How effective are workforce training efforts to prepare building officials, experienced contractors and new workforce entrants for energy upgrade programs? What education or training gaps exist?

Efforts to recruit new workforce entrants should focus on supporting the hiring of contractors and audit firms that are already strong participants in programs and have an immediate need to hire. Make a strong percentage of workforce funds available as a reward for strong program participation. This will dramatically increase the hiring rate for trainees since they will be already hired by an active employer.