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Filer:	Lisa Schmidt
Organization:	Home Energy Analytics - HEA
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Comments by Home Energy Analytics on SB 350 Low Income Barriers Study and 8/1/117 Workshop

HEA appreciates the opportunity we had to participate in the plug load panel as part of the 8/1/17 workshop. As the panel highlighted, focusing on plug load reduction in low-income energy efficiency programs has great potential. For valid reasons, plug loads have generally been overlooked as a source of significant energy reductions. But both the overall increase in plug loads and emerging technology are changing that dynamic. Plug loads represent an increasing percentage of energy used in homes so they can no longer be ignored. Emerging AMI analysis techniques makes it possible to track down high plug loads so residents can implement low and no-cost measures to reduce them. The same AMI analysis techniques can track savings after interventions so the value of plug load interventions can be accurately quantified.

The Study emphasizes retrofits and upgrades as the primary path to achieving energy savings. As noted in the report, retrofits and upgrades are not available to renters and residents of multi-family housing where most low-income ratepayers live. It is hard to see how these services will ever be made available to these groups. For homeowners, who might benefit from upgrades, the cost is usually prohibitive. Low-income EE programs need to become more innovative, need to look beyond retrofits and upgrades. An area ripe for exploration, as discussed by the panel, is plug loads.

AMI analysis can be used to remotely pinpoint high plug load use, and further break it into idle and hourly loads. As reported in the May 2015 NRDC Issue Paper: “Home Idle Load: Devices Wasting Huge Amounts of Electricity When Not in Active Use” the average California home has a home idle load of about 220 watts representing over 20% of the total electric consumption in the home. Reducing an idle load by 10 to 20% is usually achievable by installing smart strips, timers or unplugging rarely used devices. These measures are inexpensive and easy to implement. Measuring the impact is also straightforward. A year of smart meter data is analyzed and the idle load measured prior to the intervention. Post intervention, the same analysis is performed and the new idle load determined. This intervention is valuable to both owners and renters, and residents in single and multi-family homes. But what may be more important is the actual energy saved can be determined within months after the intervention and tracked for persistence. The organization providing the service delivering the energy savings can be paid based on the actual energy saved, the concept being pioneered by PG&E’s residential pay-for-performance program.

Low-income EE programs should incorporate a pay for performance model. Paying for measured energy savings will encourage innovation and assure ratepayers are getting the actual savings that have been paid for. The example above -- of focusing on home base loads -- is just one example of an “outside the box” proposal that is economically viable. P4P encourages innovation by incentivizing organizations to provide savings at the lowest reasonable cost. Organizations will optimize EE delivery to maximize return for their work. Organizations could be for-profit or non-profit entities, or combinations of the two. Maximize return to encourage innovation in only one of the benefit of a P4P model. An equally important benefit is the opportunity to greatly simplify EM&V. An analysis of the cost effectiveness of an EE program currently takes a year or more to perform, is very expensive and usually only occurs once the program is completed. Organizations delivering EE savings would benefit from continuous feedback while the program is still ongoing so they can make mid course corrections and achieve greater savings. EE programs without continuous feedback have little opportunity to improve until the program is over and analysis is complete.

The metric used for measuring EE program success should be simple and unambiguous. The metric will drive programs to achieve a specific goal. Using $/kWh or $/therm saved would maximize energy savings. AMI analysis measures energy changes at individual residences starting within 45 to 60 months following the intervention, and continues to track energy changes. Changes are calculated based on a comparison to the baseline of energy used prior the intervention. GHG changes can be calculated based on changes to energy use. Choosing $/ton of GHG would drive programs to reduce GHG.

At the workshop Commissioner Weisenmiller asked what data the Commission could provide to better address plug load energy use. I would paraphrase that question to: “what data could the commission provide to encourage innovation in EE program design?” HEA’s response is: provide a target $/MMBtu number to optimize energy savings. But a better metric to support California GHG reduction goals would be to set a target of $/ton of GHG. All EE programs would then be aligned to achieve that goal and program innovations could occur much more quickly.