

## CAEECC Residential Input, Pre-Stage 2 Presentations: Investment in Direct Install LED Offerings for Market Transformation

1. For the market sectors of interest to you, please state one or more high level “problem statements” that specifically identify gaps or challenges facing the current PA energy efficiency program portfolio. For example, *“Public K-12 Schools are not doing nearly enough energy efficiency retrofit work despite having huge savings potential and access to the PA K-12 Schools program.”*

Residential direct install programs are experiencing lower rates of CFL installations and increased customer demand for LEDs, with lightbulb manufacturers reducing or eliminating their CFL inventory in favor of LEDs. However, based on current DEER workpapers for deemed measures, A-Lamp LEDs can cost up to 5 times as much as their CFL equivalents, but only achieve 48% the energy savings. Current workpapers assume that an LED can replace either an incandescent or a CFL, and therefore uses the lower savings baseline of a CFL to LED conversion for the deemed value of the measure. Residential programs are often restricted from installing more LEDs due to budget and TRC.

This is resulting in decreased installations (and therefore, lower savings), stranded opportunities, and preventing widespread market adoption of a better, more efficient technology. An investment needs to be made to overcome this challenge and encourage market transformation for improved long-term outcomes.

2. Please share specific observations related to the problem statement you describe above. For example, *“Public K-12 schools lack resources including staff with energy efficiency expertise to implement retrofits. Schools have a limited window for projects (summer) and therefore often miss opportunities based on timing. Schools...”*

One example of a program where this has been observed is Rising Sun Energy Center’s California Youth Energy Services (CYES) program.

Rising Sun Energy Center, a leading workforce education and training nonprofit focused on the green sector, created the CYES program in 2000, and has partnered with Pacific Gas & Electric Company’s (PG&E) Local Government Partnerships since 2006. Today, CYES operates as the residential direct install program of five Energy Watch Partnerships, including EBEW. CYES serves over 5,000 residential customers in 20 cities annually through its 7-week Green House Call service.

When CYES began, it installed CFLs as the exclusive lighting measure. Starting in 2014, it worked with PG&E to offer up to (1) A-Lamp LED per home in the East Bay, Solano, Sonoma, and San Joaquin Energy Watch territories, and up to (4) in the Marin County Energy Watch (due to the specifics of the Marin County contract). Throughout its service territory, CYES installed an average of 1.025 LEDs per home in 2014, and an average of 1.11 in 2015.

Thanks to additional funding from the City of Fremont via PG&E for Fremont's participation in the national Georgetown University Energy Prize competition, Rising Sun was also able to offer indoor dimmable LED flood lamps (R-BR) to Green House Call customers in Fremont during the summer of 2015. The Fremont CYES site was supplemented with (391) 10 watt R-BR lamps, as past CYES programs had noted a missed opportunity in Fremont homes where screw-in halogen or incandescent flood lamps were found in recessed ceiling cans that were controlled by wall dimmer switches, making the replacement of these with CFLs unfeasible. With the supplemental offering of the R-BR lamps, however, dimmable incandescent and halogen flood lamps were able to be replaced with a 10 watt LED equivalent.

At the conclusion of the CYES summer program in 2015, the CYES Fremont site ranked 1st of all 20 CYES sites for total kWh saved, and 2nd for total number of Green House Call visits (334 homes, or 134% of the homes-served goal). The 391 supplemental R-BR lamps resulted in average energy savings of 15.78 kWh per lamp. All of the supplemental R-BR lamps were installed before the end of the 7 week program, demonstrating the demand for these LED items. In addition, in-field outreach staff in Fremont reported that the LEDs were instrumental in customer uptake of the program in summer 2015, opening up opportunities for more in-home installations of other measures and greater savings.

A final dimension of this issue is missed or stranded opportunity: for example, CYES encounters a significant number of canned or recessed halogen and incandescent lights that operate on a dimmer switch, and are therefore ineligible for CFL replacement. LEDs, however, can operate on dimmers and still achieve measurable energy savings. Without more comprehensive LED offerings, CYES must leave savings opportunities behind, leaving customers wondering why there is no energy-efficient replacement option for dimmable fixtures.

To gauge the impact of these stranded opportunities, Rising Sun used the Fremont pilot of R-BR LEDs in 2015 as our sample, estimating the savings missed by not being able to replace dimmable flood lights in other cities.

Assuming a rate of 1.17 R-BR installations per visit across all 20 CYES cities, we estimate that CYES was forced to ignore about 99,237 kWh in savings opportunities in 2015. This calculation, of course, still assumes the savings value of LEDs based on the DEER calculation of a CFL to LED conversion, failing to accurately capture the fact that these LEDs in reality may be replacing the higher watt incandescent or halogen equivalents and achieving better savings.

3. Cite the analyses and data sources that support your observations and problem statements. If you are citing unpublished information sources, feel free to attach such documents in your transmittal email for sharing with the larger group.

New lightbulb energy efficiency standards enacted in the Energy Independence and Security Act of 2007 went into effect in California a year earlier than the rest of the country, starting in 2011 with 100W bulbs, and ending in 2013 with 40W bulbs. While incandescent bulbs still exist in the market and in customer homes, these new standards mean that CFL replacement opportunities are harder and harder to find: many homes have already converted their incandescent lighting to CFLs (due to what's available on the shelves), resulting in fewer opportunities for CFL installations. GE recently announced that it will be phasing out sales of its CFL bulbs, and other bulb manufacturers have stated this year that they are ramping down or discontinuing their stock of CFLs due to higher demand for LEDs.

Indeed, in the final CPUC decision for 2015 Energy Efficiency Programs (Decision 14-10-046), in Section 2.4.3, IOU administrators are instructed "to capture the remaining market potential for CFLs reflected in...hard-to-reach markets", but "not to focus their incentive programs on basic CFL measures". While programs like CYES successfully target hard-to-reach customer segments, CYES (as one example) has still experienced a 24% reduction in the number of CFLs installed per home between 2012 and 2015, with a steady decrease in each consecutive year, despite expanding into new, unserved territories. This speaks to the shift that has occurred in terms of widespread CFL adoption.

***Attached*** is a memo, *Expanding Residential Direct Install LED Offerings*, that explains the full issue and its impacts, submitted on behalf of the East Bay Energy Watch Partnership Strategic Advisory Committee and signed by its co-chairs.

4. Describe high level intervention strategies and respective performance metrics that you believe the PAs should be considering to address the problem statements you noted above. Reminder: these should not be specific program ideas or specific implementation strategies. That level of detail will be the subject of discussion after the Business Plans are filed in September, 2016.

We recommend a reassessment of the DEER calculations to set deemed savings for LED installations that reflect the **true value** of LEDs. For example, there could be one set of measure codes for replacing an incandescent bulb with a CFL, one for replacing an incandescent bulb with an LED, and one for replacing a CFL with an LED. Currently, there is one set of deemed values for all three of these scenarios, meaning that valuable savings (from incandescent to LED) are lost and not counted towards TRC.

Currently, leading market transformation by increasing LED offerings would necessitate a faster spend-down of direct install budgets, since LEDs are more expensive than CFLs. Assuming no change in the DEER-based workpaper, nor an increase in implementer budgets, an increase in LED offerings would mean that residential programs could serve fewer homes annually, and would achieve fewer savings.

The hardware replacement opportunities for CFLs are decreasing due to the phase-out of incandescent lamps. Upgrade opportunities that do exist – such as incandescent lights on

dimmers – are passed up due to workpaper restrictions. Customers are increasingly requesting LEDs, and increased LED offerings tend to attract more customers. LED prices are starting to come down, and while current workpapers ensure that LEDs can't compete with CFLs for deemed savings, CFLs will cease to earn savings if there are fewer and fewer viable opportunities to install them.

The CPUC and the IOUs have a chance to take the lead in promoting a technology that uses less energy, saves customers money, and reduces greenhouse gas emissions – and that has greater savings potential. To add more LEDs to residential programs, we need to make an investment: temporarily accept higher costs and potentially lower savings – until LED costs drop or until adjustments are made to available workpapers.

5. If there are key potential partners (e.g., Realtors) needed to support your proposed intervention strategy please describe those partners and what their roles might be in those interventions.

We encourage engaging residential direct install implementers in this conversation, as well as local governments seeking to provide residents with the best technology and meet their cities' Climate Action Plan goals.

6. If you believe that certain current intervention strategies in the PAs portfolios should be shut down or materially changed, please explain your thoughts and provide evidence in terms of data or reports supporting your contention.

N/A