

Interior LED Parking Garage/Exterior LED Billboard WP Measures (ROB or ER)?



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Presentation Overview

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Objective 1: To summarize WP development process:

- Interior LED Parking Garage
- Exterior LED Billboard

Objective 2: Obtain TF Input on

- Developing an approach to meet the preponderance of evidence standard for ER deemed wp measures
- Develop an acceptable approach for deemed measure studies
 - Low rigor studies?
 - Modified low rigor studies or other reasonable approach?

Interior LED Parking Garage WP Measure



Interior LED Parking Garage WP Measure



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- **CalTF Abstract:**

- Started out as an Interior Parking Garage Luminaire Measure
- Because of policy framework, most WPs use ROB install type
- Abstract modified to LED Retrofit Kits to consider customer costs
- Reality: Baseline fixtures consist of metal halide, high pressure sodium, or 1st Gen T8.

- **Staff Comments on Abstract**

- **Net-to-gross:** All-Default<=2yrs seems fine.
- **Multiple technologies** indicate the need for multiple measures.
 - ✦ (Enclosed vs Day lit garages)
- **Hours of Ops** There appear to be 3 potential data sources.
 - ✦ 8760 has interim approval from previous workpapers submissions, but has not been through a detailed review.
- **Minimum Code** should not be assumed equal to standard practice .
- **Demand Reduction** Suggestions to modify calculation approach.

Interior LED Parking Garage WP Measure



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- **CalTF Full WP Recommendation:**

- Include Early Retirement (ER)

SCE Program Team Position

- Adopted/Addressed EAR team's Early Observation Feedback
- Considered CalTF ER recommendation
- Decided ROB only to increase likelihood of quicker CPUC approval

Attempt to Use New Collaborative WP Review Process

- 8/18/2016 - CalTF submitted wp to CS/EAR team
- 8/25/2016 - Informed by CalTF staff that new collaborative wp review process is not official
 - ✦ ED staff reserves the right to use current approval process at its discretion
 - ✦ Recommends SCE upload wp to WPA using
- 9/1/2016 – SCE uploads wp onto WPA

Exterior LED Billboard WP Measures



Exterior LED Billboard WP Measures



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- Presented Abstract to CalTF on June 30, 2016
- Initial Goal: ROB to increase likelihood of quicker CPUC approval
- CalTF believes this is an Early Retirement measure and would require data collection during program implementation to support existing baselines

Exterior LED Billboard WP Measures

- Action Items

1. This measure should be treated as a repair indefinitely (would continue to replace lamps as standard practice)
 - ✦ See survey response question 3
2. Adjust base case cost based on bulb and not fixture replacement
 - ✦ MH bulbs averaged about \$45 per lamp instead of \$260 per fixture
3. ER is most likely the application type –
 - ✦ See survey response question 3, 5a and 5b
4. Explain how will the Express program will trigger changes in behavior in LED use instead of metal halide
 - ✦ TBD?
5. Calculate simple payback
 - ✦ ROB: 0.88 /fixture
 - ✦ ER: 2.08/fixture

Exterior LED Billboard WP Measures

- Action Items

1. Follow up SCE custom project files on HOU metered data
 - ✦ haven't checked on metered data yet but custom files indicate 4100
2. Define measure by fixture and wattage not by use case (i.e. billboards)
 - ✦ For solution directory, it may still need to be Exterior LED wall wash luminaires
3. Full consideration of both T24 and T20
 - ✦ T24 code indicates that signage lighting must be 2.3W/sq-ft per billboard side
4. This measure should be treated as a repair indefinitely (would continue to replace lamps as standard practice)
 - ✦ See survey response question 3

Exterior LED Billboard WP Measures

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With SCE EM&V team's input, survey questionnaire developed

- ~25 Active Members of CA State Outdoor Advertising Association (CSOAA) contacted
- ~16 total participants
 - 15 full participation; 1 partial participation
- Q3: Standard Practice for Maintenance:
 - replace MH lamps with MH lamps
- Q5a: New construction installations:
 - LED fixt.
- Q5b: Existing billboard retrofits:
 - Survey responses varied from MH to LED
 - ✦ For LED retrofits, installations ranged from 1-3%, 20% and in one case 70% of all fixtures converted to LEDs
 - ✦ One survey respondent indicated 100% fixtures were converted to LED

Exterior LED Billboard WP Measures

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- Q11a – participated in Rebate program – Y
 - Likelihood to install LED fixture w/o rebate: 8 survey respondents
- Q11b – participated in Rebate program – N
 - 5 survey respondents
 - 2 not sure
 - 1 non-response due to partial survey

Exterior LED Billboard WP Measures

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- Based on survey responses, recommendation to SCE program team is to pursue
 - ER Measure Single Baseline because
 1. customers will install LED fixtures without the rebate and
 2. customer trend is moving to LED fixtures based on this market segment.
- SCE program team decided that
 - Deemification should help reduce program costs not increase it
 - Allocating funds to perform studies w/o clear requirements does not align with cost cutting initiatives

Early Retirement (ER) or Replace on Burnout (ROB)



Policy Framework on ER

D.11-07-030 Attachment B at B13 states

- “Pre-existing equipment baselines are only used in cases where there is **clear evidence** the program has induced the replacement rather than merely caused an increase in efficiency in a replacement that would have occurred in the absence of the program.”
- “These early or accelerated retirement cases may require the use of a “dual baseline” analysis that utilizes the pre-existing equipment baseline during an initial RUL period and a **code requirement/industry standard practice baseline** for the balance of the EUL of the new equipment.”

Policy Framework on ER

D.11-07-030 Attachment B at B13 states

- “We note that D.11-07-030 may not reflect our clarification that the **compelling evidence standard** for the determination of baseline equipment **must be applied** to both possible outcomes.
- Specifically, D.11-07-030 notes that **it is necessary to establish, by a preponderance of evidence**, that the program has induced the replacement rather than merely caused an increase in efficiency in a replacement that would have occurred without the program.

Cal.Evid.Code § 115 Burden of Proof

- “Burden of proof means the obligation of a party to establish by evidence a requisite degree of belief concerning a fact in the mind of the trier of fact or the court.
- The burden of proof may require a party to raise
 - a reasonable doubt concerning the existence or nonexistence of a fact by
 - ✦ A preponderance of the evidence,
 - ✦ clear and convincing proof, or
 - ✦ proof beyond a reasonable doubt.
- Except as otherwise provided by law, the burden of proof requires proof by a **preponderance of the evidence**.

Policy Framework on ER

What is Preponderance of Evidence?

- Usually defined in terms of probability of truth,
 - E.g. evidence when weighed with that opposed to it has more convincing force and the greater probability of truth
 - AKA – “more likely true than not true”

What is Clear & Convincing Evidence?

- Clear, explicit and unequivocal,
 - so clear as to leave no substantial doubt, and sufficiently strong to command the unhesitating assent of every reasonable mind

Differences between the two standards

- A preponderance calls for probability, while clear and convincing proof demands a high probability
- The difference between the two standards of proof is easy to articulate, but often difficult to apply.
- **UTILITY CONSUMERS ACTION NETWORK v. CPUC (2010)*

Examples on How to demonstrate a preponderance of evidence for ER measures

- Include dialogue from previous customer/IOU meetings showing how the IOU accelerated the early retirement of the existing measure.
 - Include meeting dates and participant names.
 - Provide details on the high efficiency measure/s that were proposed by the IOU.
 - State some of the program features that the IOU educated the customer/s on that they were previously unaware of.
- Provide simple payback calculations with and without the IOU incentive.
- Provide documentation of any additional drivers for the project not related to energy efficiency.
- Provide documentation of any preliminary measurements performed for the customer by the IOU

Examples on How to demonstrate a preponderance of evidence for ER measures

- Document the known standard efficiency equipment alternatives that are available in the market or that were considered by the customer
- Include existing equipment installation dates (and old existing equipment invoices if available).
- Provide a calculation of the remaining useful life (RUL) of the existing measure based on its previous installation date and/or other forms of evidence to support estimated RUL.
- Provide a customer statement that the existing equipment is still in proper working condition and will continue to operate through the larger of one year or the claimed RUL.
 - Include readily available records of ongoing equipment maintenance and equipment performance.

CalTF Input on Preponderance of Evidence Standard for ER Measures

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- Developing an approach to meet the preponderance of evidence standard for ER deemed wp measures?
- Develop an acceptable approach for deemed measure studies
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 - Modified low rigor studies or other reasonable approach?