

Tier 2 Advanced Power Strip Follow Up



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February 2015

Presentation Overview



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Objective: Seeking TF approval of Tier 2 APS WP

- Update on SDG&E Commercial Field Trial Study
- TF January Feedback and WP Follow Up
- CALPLUG's Tier 2 APS Roadmap and Definition
- Seeking Approval from TF for Tier 2 APS
 - Things for the TF to Consider

SDG&E Commercial Field Trial

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TABLE 11 – AVERAGE ENERGY SAVINGS RESULTS FOR THE PC TRIAL

DATASET	MONITORED TIME [DAYS]	WEEKLY USE [HOURS]	BASELINE ANNUAL USAGE [KWH]	ANNUAL ENERGY SAVINGS [KWH]	% SAVINGS
Office Settings	9.9	44.1	852.4	529.0	60.8%
Computer Lab Settings	9.3	53.2	469.7	302.4	64.8%
Combined	9.5	50.4	587.4	372.1	63.6%

For the PC trial, confidence intervals for the annual baseline consumption and savings are as follows:

- 90% confidence interval for baseline consumption: (504 kWh, 670 kWh)
- 90% confidence interval for savings: (313 kWh, 431 kWh)
- SCE TRC - 3.84

TF January Feedback & WP Follow Up



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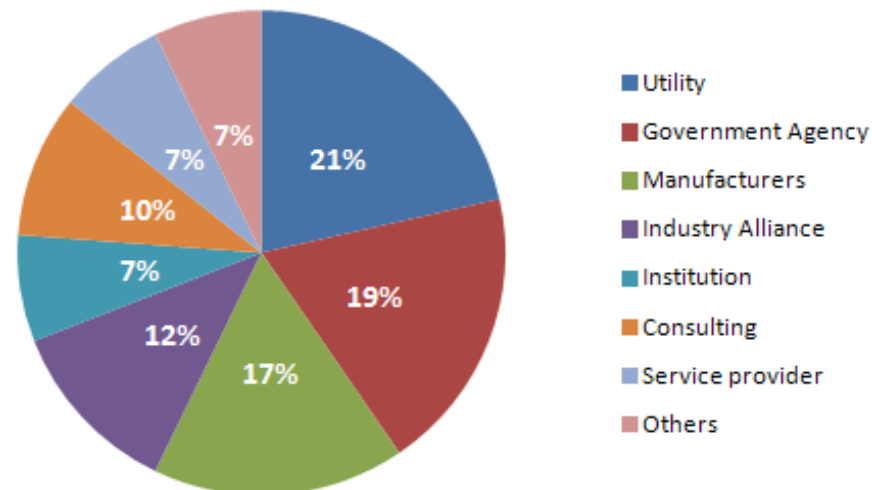
TF Comment	Update from Workpaper Developer
1. Determine the statistical confidence level of the study results performed in California (at least for SDG&E), embed in workpaper	95% confidence: <ul style="list-style-type: none"> •Baseline usage [365 kWh, 560 kWh] •Savings [178 kWh, 289 kWh] 90% confidence: <ul style="list-style-type: none"> •Baseline usage [381 kWh, 544 kWh] •Savings [187 kWh, 280 kWh]
2. The California studies are most appropriate for use in this workpaper. Combining the two studies would be reasonable.	SDG&E Residential and Santa Cruz Field Trials <ul style="list-style-type: none"> •Savings: ~262 kWh per residential AV environment
3. Estimate cost of collecting baseline usage data through implementation.	PG&E is initiating a customer satisfaction and persistence survey <ul style="list-style-type: none"> •Timing of completion later in 2015 •PG&E may be able to speak about cost, timeline, and scope of the survey
4. Use RASS and Nielsen data to cross-validate baseline usage assumptions.	RASS <ul style="list-style-type: none"> •Over 60% of households watch 1-8 hours of TV per week Nielsen <ul style="list-style-type: none"> •Already incorporated in CALPLUG's SIM-LAB approach
5. Estimate saving potential as percentage of portfolio.	Program Administrator Feedback Needed <ul style="list-style-type: none"> •Historical impact based on Tier 1 •High Impact Measure in 2015 (1% of portfolio savings?)

CALPLUG Roadmap and Tier 2 Definition

Arthur Zhang
FEBRUARY 2015

CalPlug Workshop Series (2011 Nov-)

- Semiannual event (Nov, May)
- Established as a collaborative forum for all EE industry stakeholders to make concerted efforts.
- Identify top-priority research areas for energy efficiency in plug load category.
- Received wide support from industry project champions.
- **Two Coming events:**
 - Mar 4th 2015 Tier 2 APS
 - May 12th 2015 Plug Load



Workshop participants



CalPlug's Roadmap for Emerging Technologies

Manufacturers

SIEMENS

embertec[®]
ENERGY EFFICIENCY TECHNOLOGIES

TrickleStar[®]
Conserving energy. Improving life.

valta

smartenit[®]
Making your world smarter and greener

Neutral Third Parties

WECC

STEP I

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Pilot study
and
Field Test

IV

1000 - 1M

Promotion
and
Scale-up

CALIFORNIA
TECHNICAL FORUM

CalPlug
CALIFORNIA PLUG LOAD RESEARCH CENTER

Utilities

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

LA
DWP
Los Angeles
Department of
Water & Power

PG&E

ANAHEIM
PUBLIC UTILITIES
ANIMATED UTILITIES

CalPlug's Draft Definition for Tier 2 APS

- **Tier 2 Advanced Power Strips are recommended to have the following features:**
 1. Usage Sensing – to provide at least one method to sense and determine consumer utilization and usage pattern;
 2. Advanced Power Analysis – to perform advanced power analysis in addition to voltage and current sensing (Tier 1). These power measurement and analysis may include, true RMS power, power factor analysis and other load signature detection.
 3. Control Algorithms - to perform automated power management of connected devices based on data and information acquired



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Things for the TF to Consider

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- **Technical specifications requirements that impact ability to achieve energy savings**
 - Lack of national standard such as ENERGY STAR
 - CALPLUG's Tier 2 definition
- **Validating energy savings claims**
 - CALPLUG's roadmap
 - Other methods (lab only, modeling)
- **Representativeness of field trial data of target population**
 - Low Income versus affluent/energy aware customers
- **Future Baseline Data Collection Calibration**
 - Quantity, timing, and scope
 - Persistence Surveys
 - ✦ Customer satisfaction