Tier 2 Commercial Advanced Power Strip (APS)

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Presentation Overview

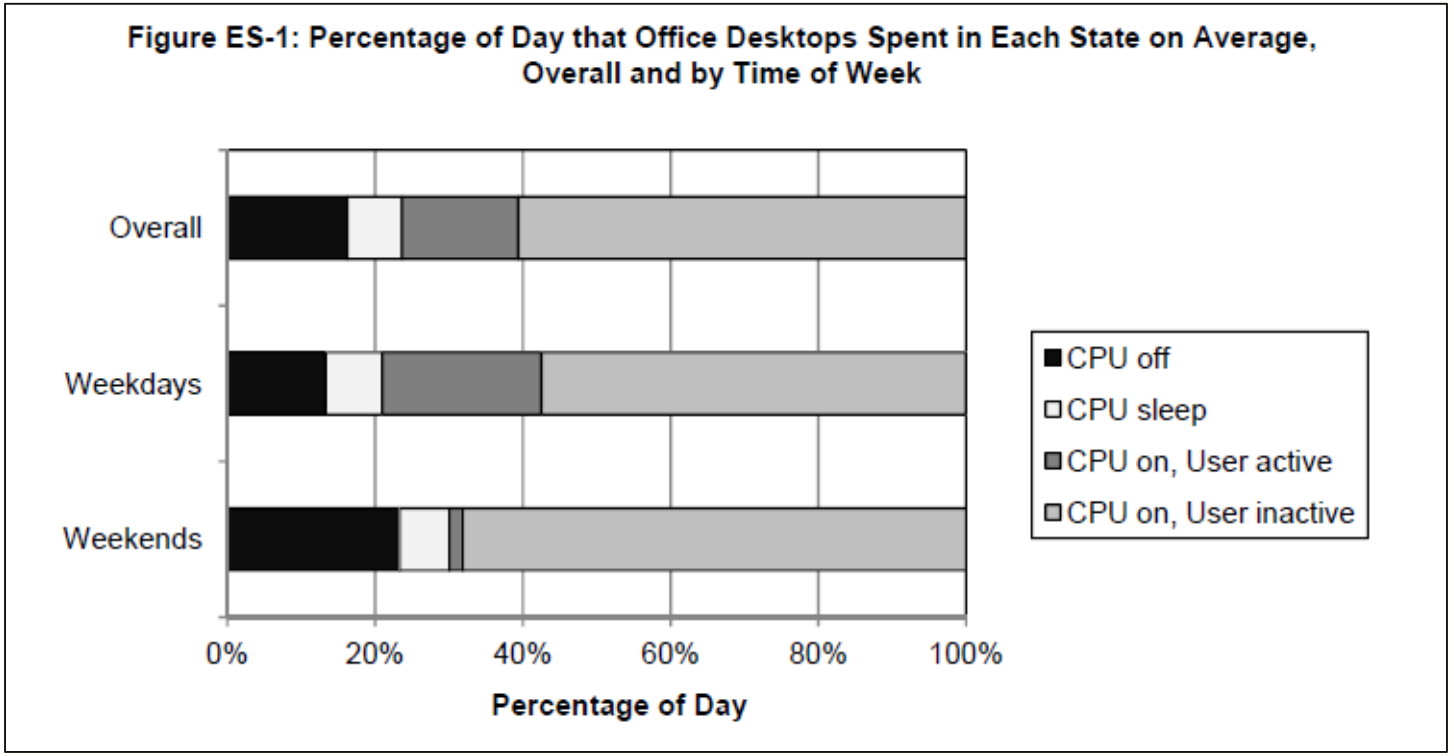
Objective: Seeking TF approval of draft workpaper

- Identify and respond to Cal TF questions and follow-up items from May Cal TF meeting
- Any other Cal TF questions/open issues
- Seek approval of commercial Tier II workpaper

Responses to Cal TF Requests

- **ACT** : Workpaper developer to investigate the distribution of Power Management software in the sample baseline and determine representativeness of baseline for customer population targeted by program.

Summary Results from the CALPLUG study differentiates CPU operation



Summary Results from the SDG&E ET study differentiates CPU operation

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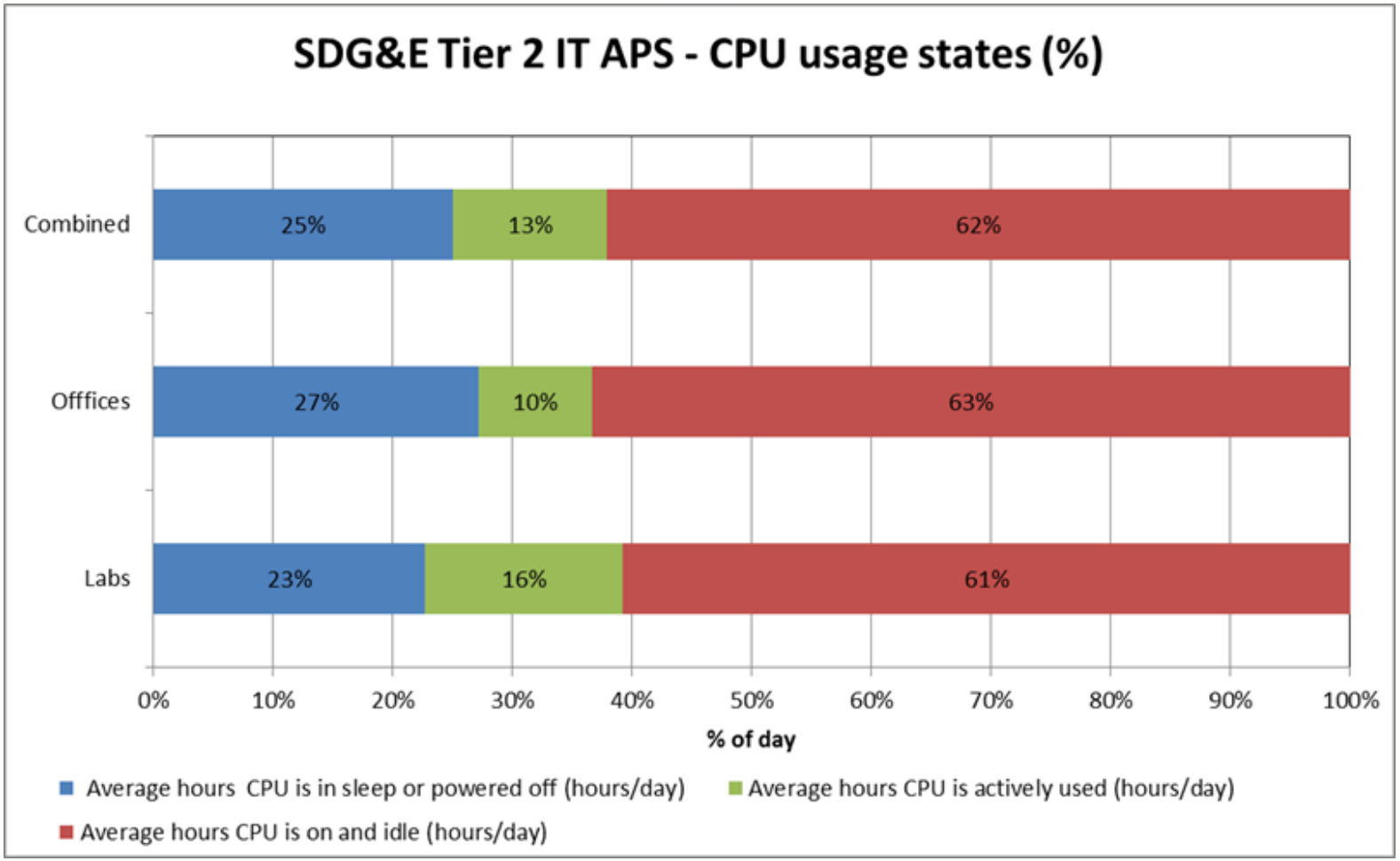

Comparison of CALPLUG and SDG&E study on CPU mode duration

- The table below highlights the differences in CPU mode duration between the two studies.
- CPU mode duration is directly related to the amount of PC energy usage and the prevalence of power management software which alters the CPU state of the PC itself.

	Study	
PC State	CALPLUG	SDG&E
CPU Off/Sleep	23%	25%
CPU On Inactive	61%	62%
CPU On Active	16%	13%

- Given the strong correlation between the two studies in terms of CPU mode duration, this provides confidence that the SDG&E sample set is not skewed one way or another in terms of PC usage patterns or power management settings which would lead to changes in the trial outcome.

Cal TF Staff Request

- **ACT**: Workpaper developer to perform literature review to assess whether any studies have assessed the impact of pre-existing power management software (computer or network-based) on energy savings.

CalPlug Data Assessment

- Response:
  - This field trial was installed in environments with pre-existing power management software as shown in the field trial data set. Further the correlation between this study and a 3rd party independent study (CalPlug) on equipment mode duration in commercial offices demonstrates a very high correlation in equipment usage and power management setting trends between the field trial and CalPlug.
  - The CalPlug field trial process enabled the ability to determine the incidence of pre-existing energy saving software in each PC environment. This is due to the field trial method not interfering with the PC system itself.
  - Customer application to indicate if they have existing network power management software

Power Management Setting Usage

- The table below provides a break down on the power saving events in each field trial environment.

Field Trial Environment	Always on	Irregular or manual on/off	Scheduled on/off
Offices	57%	43%	0%
Computer Labs	23%	12%	65%

- The majority (65%) of Computer Lab PC's did have power management schedules, this is evident from the regular and routine on/off periods throughout the trial detailed in the CalPlug data set.
- Computer Lab PC's also used only one peripheral device (PC monitor) per PC workstation which should be considered when assessing average office energy savings.
- The office environment exhibited 43% of users who manually turned off their PC's.
- Correlating this data with CPU mode duration on slides 4 & 5 provides confidence that the incidence of power management settings enabled were not outside the norm for commercial offices with their impact captured during the field trial.

Responses to Cal TF Requests

- **ACT** : Workpaper developer to modify the measure eligibility criteria to require a) field testing of devices from each manufacturer to ensure that the distinct control strategies used by each manufacturer produce the expected savings, and b) the ability of the manufacturer of a specific Tier 2 IT APS to put the controlled devices to sleep.
  - Response: Done.

Responses to Cal TF Requests

- **ACT** : Workpaper developed to ask SDG&E if a commercial customer acceptance/persistence study can be done after one year of program operation to assess persistence, customer acceptance and savings in different commercial environments.

  - Response: SDG&E is in the process of targeting 700 units to deploy and developing a scope to monitor 100 units and survey customers. If there is a preference where they should be installed, now would be the time to get CALTF feedback before July - August start date.

Responses to Cal TF Requests

- **ACT**: Workpaper developer to get feedback from staff on 8 year DEER EUL for commercial power strips.
  - Response: In progress. See memo on Res Tier 2 APS EUL research for status of discussions with Commission staff.

Responses to Cal TF Requests

- **ACT** : Cal TF staff to follow-up with CPUC staff to get "bright line" staff ruling on when product removal/product persistence should be accounted for in the EUL rather than the installation rate.
- Response:
  - Effective Useful Life: An estimate of the median number of years that the measures installed under a program are still in place and operable.
  - Installation Rate: Installation rate is the ratio of the number of verified installations of a measure divided by the number of claimed installations rebated.
  - **NOTE**: Based on oral guidance from staff, it appears that subsequent product removal should be included in the EUL, and that the installation rate captures only products that were not installed in the first place. Cal TF staff seeking written staff confirmation of this interpretation.

Appendix

Responses to Cal TF Requests

- **ACT #2**: Workpaper developer to investigate the distribution of Power Management software in the sample baseline and determine representativeness of baseline for customer population targeted by program.
  - Response, Part 1: According to the university staff, the computers that were tested did not have any PC management software or algorithms in place other than the standard windows regimen.
  - Response, Part 2: Second by second data from the CalPlug field trial approach details that 65% of the laboratory computers in the trial did use power management software as PC's were routinely switched off in the evening and back on the following morning. The CalPlug field trial approach enabled the ability to track the time in which the PC stayed in each mode and percentage of time in each mode.
  - Response, Part 3: Distribution of power management software would affect the average time PC's spend in each operational state. As detailed in the workpaper, the average time field trialed PC's spent in each operational mode was almost identical to a separate study conducted by Calplug in a separate commercial office environment. This provides confidence that the field trial environments in the SDG&E trial are not dissimilar from the norm.
  - Response, Part 4: As per page 47 of the ETCC report, monitoring the "active peak PC system power" per installation can provide further confidence in annual baseline kWh used and saved across installations of this measure. It should be investigated if this data can be collected in the future deployment of this measure to assist with ex-post evaluations.