

# Appliance / Plug Load Cal TF Tier 2 Presentation



**CALIFORNIA**

TECHNICAL FORUM

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# Appliance and Plug Load Category Measure Affirmation

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*“Cal TF affirms the subcommittee recommendations regarding ‘Stage 1 Issues’ for Appliance and Plug Load, as amended.”*

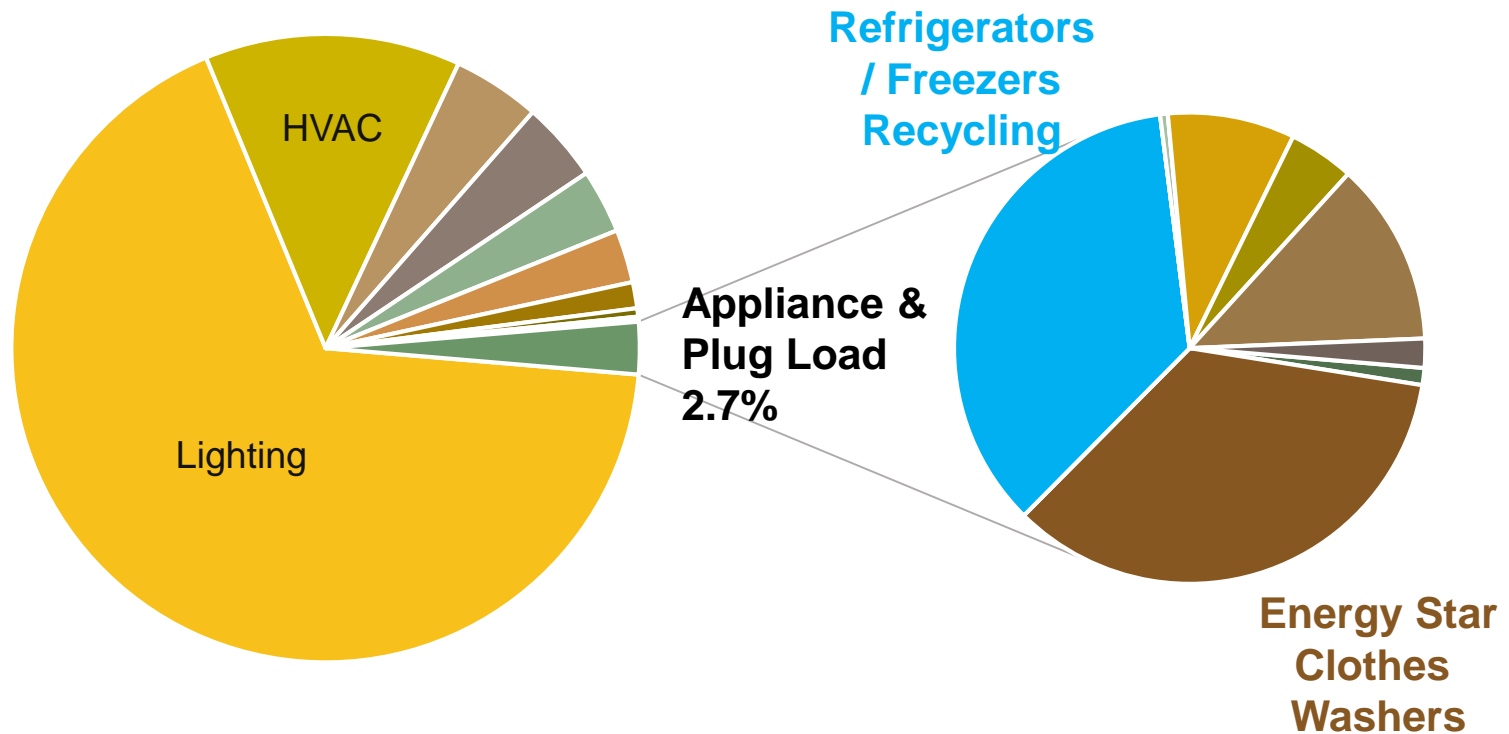
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- 7.16 Smart Power Strips

# Appliance / Plug Load Savings

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## 2016 CA Deemed Electric Savings (Total = 912 GWh/yr)

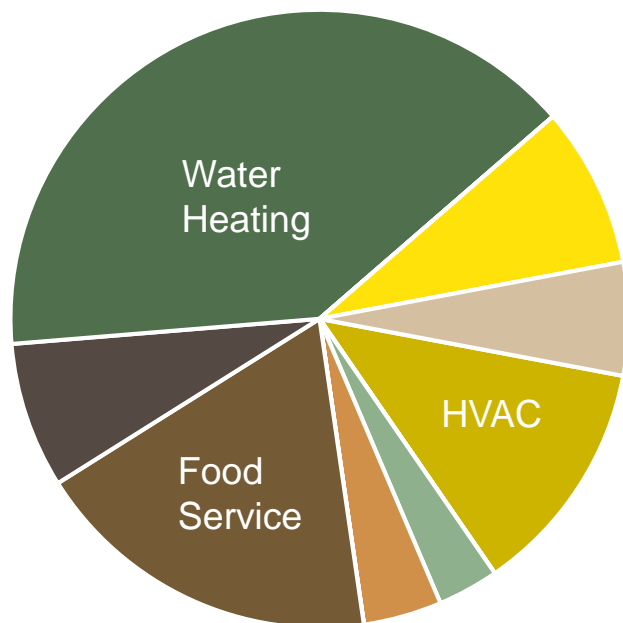


\* Data Source: 2016 CA IOU claims data.

# Appliance / Plug Load Savings

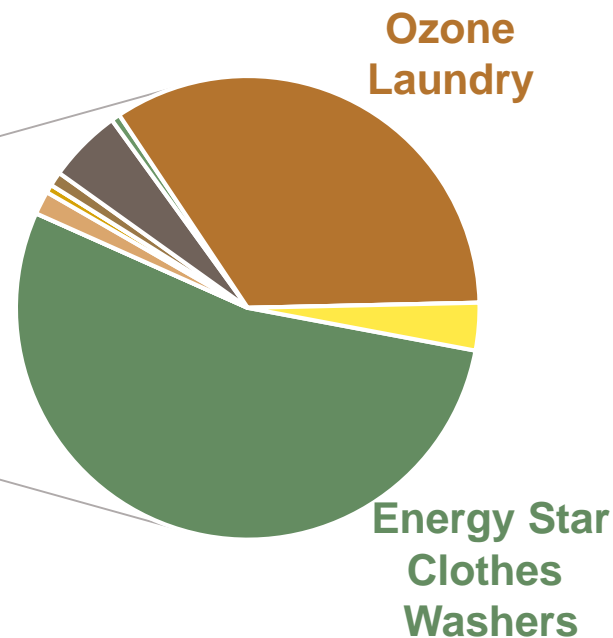
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## 2016 CA Deemed Gas Savings (Total = 12 MMTh/yr – without penalty)



(Lighting Penalty Removed)

**Appliance &  
Plug Loads  
5.6%**



(Refrigerator-Freezer /  
Power Strip Penalty Removed)

\* Data Source: 2016 CA IOU claims data.

# Appliance and Plug Load

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No.	Measure Names	Plan	PG&E	SCE	SDG&E	SCG	POU
7.01	Energy Star Refrigerator	2017					
7.02	Smart/Connected Refrigerator	2018					
7.03	Refrigerator and Freezer Recycling	2017					
7.04	Energy Star Clothes Dryers	2017					
7.05	Energy Star Clothes Washers	2017					
7.06	Cold Water Default Clothes Washer	Sunset					
7.07	Non Res High Efficiency Clothes Washer in MF Properties	No Votes					
7.08	Clothes Washer Recycling	No Votes					
7.09	Ozone Laundry Nonresidential	2017					
7.10	Res Ozone Laundry	2017					
7.11	Industrial CO2 Laundry	No Votes					
7.12	Residential Energy Star Dishwasher	2017					
7.13	Under Counter Type Commercial Dishwasher	2018					
7.14	Retail Products Platform	2017					
7.14a	Room Air Conditioners	Added as part of RPP					
7.14b	Room Air Cleaners	Added as part of RPP					
7.15	Power Management Software for Networked Computers	2017					
7.16	Smart / Advanced Power Strips	2017					
7.17	Tier 2 Advanced Power Strip	Consolidated					
7.18	Vending and Beverage Merchandise Controller	2017					



Lead Workpaper

Support Workpaper

Missing Workpaper (typically from measures that are not moving forward)

- Offering
  - Smart Strips (Tier 1) – shuts power off to designated devices when “master” device is shut off
    - ✦ Offerings for Res and Non-Res
  - Advanced Power Strips (Tier 2) – uses multiple sensor methods and algorithms to shut off devices when non-use is detected
    - ✦ Offering for Res
    - ✦ IR, IR+OS variants
  - Tier 2 Connected
    - ✦ Offering for Res
- Stage 1 Issues
  - Consolidated both categories of power strips
  - Recognize that savings calculations will initially differ between Tier 1 and Tier 2
  - Split savings out into IR, IR+OS from blended (based on EAR disposition)
  - Added Tier 2 connected (per SCE work paper)
- Stage 2 Issues
  - *Develop appropriate estimation/documentation methodology for emerging control methods*
  - *Develop savings methodology that is based on feature sets*
    - ✦ *Permits savings determination for control methods that are either newly on market or don't exist today*
      - Networked control
      - Geo-fencing
  - *Expand to 16 climate zones for interactive effects*

# Input Consensus

## 7.16 – Smart, Advanced Power Strips

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- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Res Com	Res	DMo,ECC,EUn,Gst,Htl,MFm,Mtl,SFm,SUn,Asm,EPr,ERC,ESe,Gro,Hsp,MBT,MLI,Nrs,OfL,OfS,RFF,RSD,Rt3,RtL,RtS,SCn,WRf	DMo,MFm,SFm	No Value
BldgVintage	Any	Any	Any	Ex	No Value
BldgLoc	IOU	IOU	,CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ07,CZ08,CZ10,CZ14,IOU,CZ06,CZ15	No Value
BldgHVAC	Any	rWtd	Any	Any	No Value

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	REA	REA	RET	No Value
NormUnit	Each	Each	Each	Each	No Value
EUL ID	Plug-OccSens	Plug-OccSens	Plug-OccSens	Plug-OccSens	No Value
RUL ID	1/3 of 20 yrs	No Value	No Value	No Value	No Value
NTGR	Com-Default>2yrs Res-Default>2 Agric-Default>2yrs Ind-Default>2yrs ET-Default Res-Default-HTR-di	Res-Default>2	Com-Default>2yrs Res-Default>2 Agric-Default>2yrs Ind-Default>2yrs	EUC-Default	No Value
DeliveryType	PreRebDown DirInstall NonUpStrm	DirInstall	PreRebDown DirInstall NonUpStrm	DirInstall	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	No Value	No Value

# 7.16 – Smart, Advanced Power Strips



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- History
  - CalTF members generally endorsed the use of two savings estimates for Tier 2 power strips
    - ✦ IR-only
    - ✦ IR+OS
    - ✦ Consensus was not reached on this topic
  - IOU submitted work paper with separate savings for the two Tier 2 technologies, but proposed averaged value
  - Ex Ante Team Approved reduced savings as average for both technologies
    - ✦ **EAR disposition includes IR, IR + OS, and blended technology savings**  
EAR did not see rational basis for different savings from essentially similar products
    - ✦ Phase 2 testing was to include pre-post determinations for IR + OS strips
      - Phase 1 showed this technology to save considerably less than IR-only
      - Phase 2 testing was not done as expected
  - Work paper was revised to adopt EAR findings
- eTRM values adopt disposition values
- **Additional permutations added for Tier 2 connected strips**



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- 7.16 Smart Power Strips

# Next Steps

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- Any questions, feedback, or issues, please reach out!
  - Roger Baker ([Roger.Baker@futee.biz](mailto:Roger.Baker@futee.biz))
  - Ayad Al-Shaikh ([Ayad.AlShaikh@futee.biz](mailto:Ayad.AlShaikh@futee.biz))

## Thank You!

# Appendix

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# Measure Consensus

## 7.16 – Smart, Advanced Power Strips

### • Savings Difference

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
<b>kW</b>	-31%	-26%	-43%		-32%
<b>kWh</b>	-34%	-22%	-42%		-30%
<b>Therms</b>	-38%	-17%	-32%		-28%
<b>Cost</b>	-41%	-23%	-59%		-39%
<b>Tier 1</b>					
<b>kW</b>	10%	1%			2%
<b>kWh</b>	0%	0%			0%
<b>Therms</b>	-4%	95%			43%
<b>Cost</b>	-48%	1%			-17%
<b>Tier 2</b>					
<b>kW</b>	-36%	-44%	-43%		-41%
<b>kWh</b>	-39%	-43%	-42%		-41%
<b>Therms</b>	-42%	-34%	-32%		-34%
<b>Cost</b>	-31%	-53%	-59%		-52%

Absolute Change & Comparison

	Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
<b>kW</b>	(242.22)	-163%	-35%	(44.94)	(86.25)	(116.02)	-
<b>kWh</b>	(1,255,538)	-114%	-32%	(260,633)	(426,703)	(592,026)	-
<b>Therms</b>	14,953	-353%	1%	6,691	2,743	6,042	-
<b>Cost</b>	\$ (789,040)	-102%	-12%	\$ (195,490)	\$ (199,325)	\$ (404,170)	\$ -

Note that savings broken into Tier 1 / Tier 2 so that savings differences are more apparent.

Tier 1 – little savings change

Tier 2 – difference due to some claims

including 2016 requirements and some claims submitted prior to disposition.

Note that TRC increase because both savings and cost drop – TRC shows net effect.

Tier 2 connected – newer, no claims data

### • TRC Impacts

TRC Change

	POU
<b>Tier 1 - Res</b>	120%
<b>Tier 2 - Res</b>	62%

Blue text = First time that item is mentioned  
*Italics text* = Item that has not been completed