Appliance / Plug Load
Cal TF Tier 2 Presentation

CALIFORNIA
TECHNICAL FORUM

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# Appliance / Plug Loads Measure Affirmation

"Cal TF affirms the subcommittee recommendations regarding 'Stage 1 Issues' for Appliance / Plug Loads Measures."

- 7.01, Energy Star Refrigerator
- 7.03, Refrigerator and Freezer Recycling
- 7.04, Energy Star Clothes Dryers
- 7.05, Energy Star Clothes Washers
- 7.09, Ozone Laundry Nonresidential
- 7.12, Residential Energy Star Dishwasher

- 7.14a, Room Air Conditioners
- 7.14b, Room Air Cleaners
- 7.15, Power Management Software for Networked Computers
- 7.16, Smart / Tier 2 Advanced Power Strips
- 7.18, Vending and Beverage Merchandise Controller

Appliance / Plug Load Savings

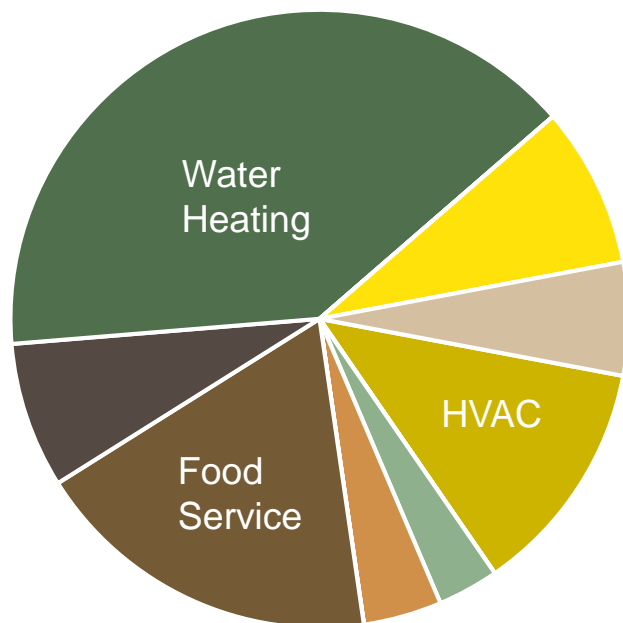## 2016 CA Deemed Electric Savings (Total = 912 GWh/yr)

HVAC

Lighting

Appliance & Plug Load 2.7%

Refrigerators / Freezers Recycling

Energy Star Clothes Washers
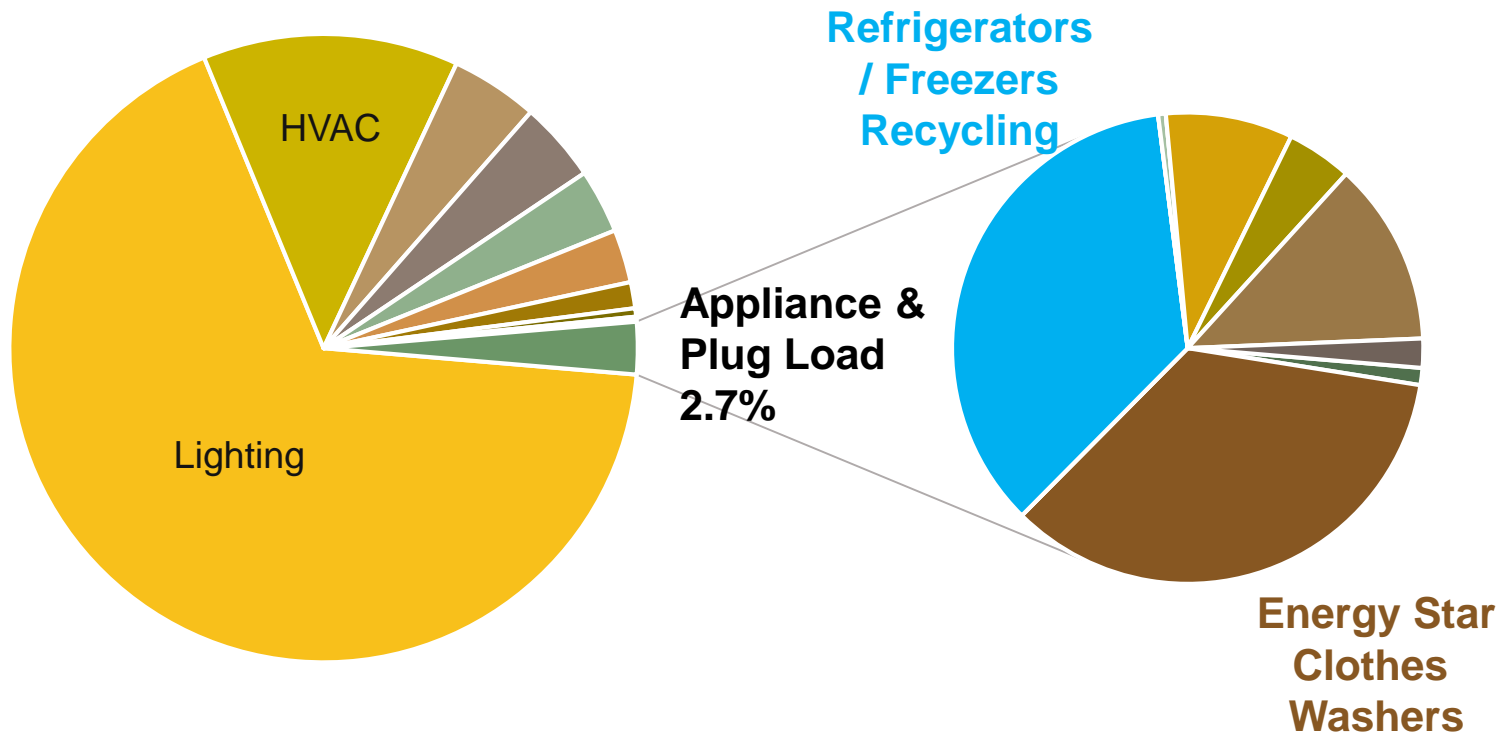
* Data Source: 2016 CA IOU claims data.

Appliance / Plug Load Savings

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

Appliance & Plug Loads 5.6%

Water Heating

HVAC

Food Service

(Lighting Penalty Removed)

Ozone Laundry

Energy Star Clothes Washers
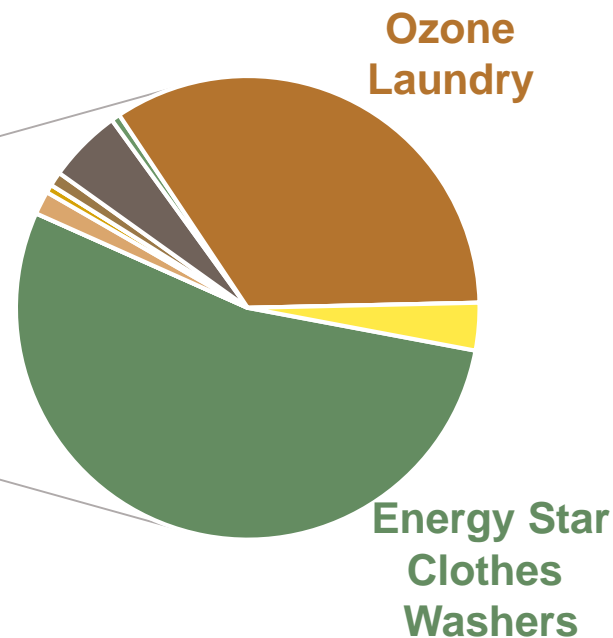
(Refrigerator-Freezer / Power Strip Penalty Removed)

* Data Source: 2016 CA IOU claims data.

Appliance and Plug Load

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**
  - Two tiers - ENERGY STAR qualified, and ENERGY STAR Most Efficient
- **Stage 1 Issues**
  - DEER methodology uses DOE UEC for base and efficient models
  - Then applies a "DEER Basis Factor" to savings
    - Reflects complex energy interactions between refrigerator and its environment
      - Refrigerator impacts HVAC energy use
      - Refrigerator performance varies by external temperature
    - Varies by climate zone and residential building type
    - Values used in work papers range from 0.64 to 1.45, average value = 0.94
- **Measure Extension**
  - Measure exists in POU TRM
  - Incorporates HVAC Interactive effects
  - Does not incorporate refrigerator performance factor
- **Stage 2 Issues**
  - *Address DEER Basis factor with EAR team*
  - *Address different offerings through RPP and other delivery channels*
  - *Remove PA dependencies, which are due to the DEER Basis Factor*

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW		0%	0%		-2%
kWh		-1%	-1%		-3%
Therms		-1%	6%		1%
Cost		3%	-75%		-69%

Absolute Change & Comparison

	Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
kW	(1.01)	-2%	0%	-	(0.03)	0.02	-
kWh	(7,764)	-3%	0%	-	(1,417)	(1,449)	-
Therms	(42)	1%	0%	-	33	(193)	-
Cost	$ (626,137)	-69%	-10%	$ -	$ 2,090	$ (626,102)	$ -

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

Input Consensus
7.01 – ENERGY STAR Refrigerator

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Res	Res	Res		
BldgVintage	Any	No Value	Any		
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	No Value	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16		
BldgHVAC	Any	Any	Any		

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	No Value	ROBNC		
NormUnit	Each	No Value	Each		
EUL ID	Appl-ESRefg	Appl-ESRefg	Appl-ESRefg		
NTGR	Res-Default>2 Res-sAll-Frzr-mid	Res-Default>2	Res-Default>2		
DeliveryType	PreRebDown, PreRebUp MidStream-RPP	No Value	PreRebDown, PreRebUp		
GSIA	Def-GSIA	No Value	Def-GSIA		

Measure Consensus
7.03 – Refrigerator Recycling

- ## Offering
  - ❑ Pick up and recycling of operable refrigerators and freezers
- ## Stage 1 Issues
  - ❑ IOUs have discontinued the program
  - ❑ Disposition had adjusted claimed savings
- ## Measure Extension
  - ❑ POUs still offer program
- ## Stage 2 Issues
  - ❑ *Continue research into market design, particularly decoupling recycling from new refrigerator purchase*
  - ❑ *Remove PA dependencies, which are due to interactive effects*

TRC change shown with respect to disposition values

TRC Change

	POU
Refrig	-49%
Freezer	-46%
Weighted	-48%

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW		-3%	4%		-2%
kWh		-5%	3%		-3%
Therms		-5%	3%		-3%
Cost		0%	-12%		-3%

Absolute Change & Comparison

	Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
kW	(21.78)	-1%	-3%	-	(34.66)	12.88	-
kWh	(205,196)	-2%	-5%	-	(258,305)	53,109	-
Therms	5,108	-3%	0%	-	6,174	(1,066)	-
Cost	$(92,250)	-3%	-1%	$ -	$ (5,155)	$(87,095)	$ -

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- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Res	Res	Res		
BldgVintage	Ex	Any	Any		
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	No Value	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16		
BldgHVAC	Any	Any	Any		

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ER	RET/ER	ER		
NormUnit	Each	Each	Each		
EUL ID	Appl-RecFrzr Appl-RecRef	Appl-ESRefg	Appl-ESRefg		
NTGR	Res-sAll-mFrzrRec Res-sAll-mRefgRec	Res-Default>2	Res-Default>2		
DeliveryType	PreRebDown	PreRebDown	PreRebDown		
GSIA	Def-GSIA	Def-GSIA	Def-GSIA		

Measure Consensus
7.04 – ENERGY STAR Clothes Dryer

- Offering
  - Two tiers – ENERGY STAR, ENERGY STAR Most Efficient
  - Gas / Electric; Vented / Ventless; Voltage Level (120/240)
- Stage 1 Issues
  - Measure is part of RPP
  - Emerging Technology Award Clothes Dryer had unfavorable disposition by Staff in original RPP workpaper
    - Was replaced with ENERGY STAR Most Efficient Tier
- Measure Extension
  - POU TRM contains Heat Pump Clothes Dryer only
- Stage 2 Issues
  - *Address with EAR team derivation of interactive effects*
    - *DEER team provides sensible and latent factors for appliances*
    - *Unsure how this addresses location of dryer, or treatment of interaction*
      - *Latent heat is usually removed by air conditioning system, but does not fully displace space heating*
  - *Remove PA dependencies, which are due to interactive effects*

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW					
kWh					
Therms				-40%	-40%
Cost				70%	70%

Absolute Change & Comparison

	Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
kW	-		0%	-	-	-	-
kWh	-		0%	-	-	-	-
Therms	(15,177)	-40%	-1%	-	-	-	(15,177)
Cost	$ 220,766	70%	3%	$ -	$ -	$ -	$ 220,766

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- ## Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Res	Res	No Value	No Value	Res
BldgVintage	Ex,New	Any	No Value	No Value	Ex
BldgLoc	IOU	IOU	No Value	No Value	IOU
BldgHVAC	rWtd	rWtd	No Value	No Value	cUnc

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROB	No Value	No Value	ROB
NormUnit	Each	Each	No Value	No Value	Each
EUL ID	Appl-EffCW	Appl-EffCW	No Value	No Value	Appl-EffCW
NTGR	Res-Default>2 Res-sAll-EffCD-Gas-mid Res-sAll-EffCD-Elec-mid	Res-sAll-EffCD-Gas-mid (0.3) Res-sAll-EffCD-Elec-mid (0.2)	No Value	No Value	Res-Default>2
DeliveryType	PreRebDown PreRebUp Midstream-RPP	PreRebUp	No Value	No Value	PreRebDown PreRebUp
GSIA	Def-GSIA	Def-GSIA	No Value	No Value	Def-GSIA

Measure Consensus
7.16 – Smart, Advanced Power Strips

- 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
- Stage 1 Issues
  - Consolidated both categories of power strips
  - Recognize that savings calculations will initially differ between Tier 1 and Tier 2
- 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*
      - *Bluetooth*
      - *Networked control*
      - *Geo-fencing*
  - *Remove PA dependencies, which are due to interactive effects*
  - *Add savings associated with IR-only product that relates to SCE latest workpaper*

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- # Savings Difference

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	-31%	-26%	-43%		-32%
kWh	-34%	-22%	-42%		-30%
Therms	-38%	-17%	-32%		-28%
Cost	-41%	-23%	-59%		-39%

Tier 1

	PGE	SCE	SDGE	SCG	Total
kW	10%	1%			2%
kWh	0%	0%			0%
Therms	-4%	95%			43%
Cost	-48%	1%			-17%

Tier 2

	PGE	SCE	SDGE	SCG	Total
kW	-36%	-44%	-43%		-41%
kWh	-39%	-43%	-42%		-41%
Therms	-42%	-34%	-32%		-34%
Cost	-31%	-53%	-59%		-52%

Absolute Change & Comparison

	Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
kW	(242.22)	-163%	-35%	(44.94)	(86.25)	(116.02)	-
kWh	(1,255,538)	-114%	-32%	(260,633)	(426,703)	(592,026)	-
Therms	14,953	-353%	1%	6,691	2,743	6,042	-
Cost	$ (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.

- # TRC Impacts

TRC Change

	POU
Tier 1 - Res	120%
Tier 2 - Res	62%

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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

- 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 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 reflect the same single value as revised work paper

Measure Consensus
7.05 – ENERGY STAR Clothes Washer

- **Offering**
  - Two tiers – ENERGY STAR and ENERGY STAR Most Efficient
- **Stage 1 Issues**
  - EAR disposition for clothes washer recycling raised concerns regarding use of USDOE wash cycle values
    - Disposition discussed values from RASS and SCE metering study
    - Same disposition acknowledged DEER relies on DOE methods for residential clothes washers to ensure consistent treatment of base case (Federal standard) and efficient case UEC
    - This same logic should be extensible to non-residential clothes washers subject to DOE methods
  - Measure savings attributable to clothes washers under DOE methods actually consist of water heating and dryer savings
    - DOE assumes all end uses are electric
    - Need to parse out savings value and convert to natural gas savings based on appropriate saturation values from RASS
- **Measure Extension**
  - POU TRM has clothes washers
- **Stage 2 Issues**
  - *Address interactive effects with EAR team, given multiple affected end uses and washer/dryer locations*
  - *Remove PA dependencies, which are due to interactive effects*
  - *Updating the measure due to updated Federal Standards (1/1/2018) and updated ENERGY STAR qualifying standards (2/15/2018).*

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Measure Consensus
7.05 – ENERGY STAR Clothes Washer

- Savings Comparison

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	-4%	-66%	-78%	-60%	-46%
kWh	-4%	-47%	6%	-8%	-14%
Therms	-3%	7568%	-13%	6%	27%
Cost	248%	116%	177%	171%	158%

Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
(1,020.12)	-46%	-147%	(26.43)	(315.34)	(112.31)	(565.73)
(1,178,130)	-14%	-30%	(181,990)	(841,640)	21,483	(173,658)
104,088	27%	5%	(3,303)	96,346	(4,235)	15,493
$ 8,772,490	158%	135%	$ 2,415,014	$ 3,101,287	$ 431,136	$2,828,878

- Notes:
  - In general
    - Many changes in savings values in 2016 (source from ExAnte 2014, 2015, 2016) makes comparison difficult
    - CEE Tier 3 categories not included (minimal impact)
    - DMo not currently distinguished (minimal impact)
  - PG&E
    - Saving discrepancy due to Commercial decrease and DMo miscategorized
  - SCE
    - Therms - Did not claim gas savings for these measure. Therefore, it appears to be a large increase
    - Savings/cost – Comparing against older data specs (2014, 15, and 16); Current ExAnte data follows the same methodology
  - SDG&E
    - Savings – Comparing against older data spec (2014)
  - SCG
    - Impact due to CEE Tier 3 and DMo issues

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- ## Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	Any,MFm	DMo,MFm,SFm,s_MiC	SFm,Com	Res
BldgVintage	Any	Any	Any	Ex	Ex,Any
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16 IOU		CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	IOU	Any,IOU,CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16
BldgHVAC	cWtd, rWtd	cWtd, rWtd	Any	Any	Any

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROB	ROBNC	ROB	ROB
NormUnit	Each	Each	Each	Each	Washer,Each
EUL ID	Appl-EffCW, ComLau-EffCW	Appl-EffCW, ComLau-EffCW	Appl-EffCW, ComLau-EffCW	Appl-EffCW, ComLau-EffCW	Appl-EffCW, ComLau-EffCW
NTGR	Com-Default>2yrs, EUC-Default, Res-Default>2, Res-sAll-mCW	Com-Default>2yrs, Res-Default>2, Res-sAll-mCW	Res-sAll-mCW, Com-Default>2yrs	Com-Default>2yrs, EUC-Default, Res-Default>2, Res-sAll-mCW	Com-Default>2yrs, Res-Default>2, Res-sAll-mCW, All-Default<=2yrs
DeliveryType	PreRebDown, PreRebUp, DirInstall Midstream-RPP	Any, PreRebDown	PreRebDown, DirInstall	PreRebDown	PreRebDown, PreRebUp
GSIA	Res-CW-PGE Def-GSIA	Res-CW-PGE	Def-GSIA	Def-GSIA	Def-GSIA

Measure Consensus
7.09 – Ozone Laundry Non-Residential

- Offering
  - Ozone system is add-on to existing commercial clothes washing machines
  - Reduces hot water requirement, partially displaces detergents and bleach requirements
  - Can reduce number of rinse cycles needed
- Stage 1 Issues
  - *Certain values not available due to lack of data*
    - *Ozone generator energy use*
    - *Hot water pumping savings*
    - *Clothes dryer impacts (if any)*
    - *Washer energy savings (due to reduced rinse requirements)*
- Measure Extension
  - Would be available to POU, not in POU TRM today
- Stage 2 Issues
  - *Conduct additional evaluation to assess ancillary savings/impacts*

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW					
kWh					
Therms	0%		0%	0%	0%
Cost	0%		0%	0%	0%

Absolute Change & Comparison

	Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
kW	-		0%	-	-	-	-
kWh	-		0%	-	-	-	-
Therms	(633)	0%	0%	(71)	-	(34)	(528)
Cost	$ -	0%	0%	$ -	$ -	$ -	$ -

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- ## Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	No Value	No Value	Com
BldgVintage	Any	Ex	No Value	No Value	Ex
BldgLoc	Any	IOU	No Value	No Value	Any
BldgHVAC	Any	cWtd	No Value	No Value	Any

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROB	No Value	REA	ROB
NormUnit	Lb-capacity	Proc-lbs	No Value	No Value	Proc-lbs
EUL ID	OzoneGen	OzoneGen	No Value	No Value	OzoneGen
NTGR	Com-Default>2yrs	Com-Default>2yrs	No Value	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	NonUpStrm PreRebDown DirInstall	PreRebDown	No Value	PreRebDown	PreRebDown
GSIA	Def-GSIA	No Value	No Value	No Value	No Value

- **Offering**
  - Two tiers, including ENERGY STAR qualified and "≤199 kWh" (SCG work paper)
- **Stage 1 Issues**
  - Unable to verify DEER measure determination
    - SCG work paper interpolates between 260 kWh and 180 kWh standard-size
    - No 180 kWh models exist in market
  - Dishwasher savings from DOE largely indifferent to water heater
    - Machine energy use often increases while hot water use decreases
- **Measure Extension**
  - POU TRM has Dishwasher measure
    - Savings based on ENERGY STAR Calculator
- **Stage 2 Issues**
  - *Address DEER measure savings derivation with EAR team*
  - *Remove PA dependencies, which are due to interactive effects*

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW				68%	68%
kWh				-1%	-1%
Therm				-1%	-1%
Cost				0%	0%

Absolute Change & Comparison

	Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
kW	(23.28)	68%	-3%	-	-	-	(23.28)
kWh	1,483	-1%	0%	-	-	-	1,483
Therms	(262)	-1%	0%	-	-	-	(262)
Cost	$ 2,892	0%	0%	$ -	$ -	$ -	$ 2,892

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- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	No Value	No Value	No Value	Res
BldgVintage	Any	No Value	No Value	No Value	Any
BldgLoc	Any	No Value	No Value	No Value	Any
BldgHVAC	Any	No Value	No Value	No Value	Any

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	No Value	No Value	No Value	ROBNC
NormUnit	Each	No Value	No Value	No Value	Each
EUL ID	Appl-EffDW	No Value	No Value	No Value	Appl-EffDW
NTGR	All-Default<=2yrs	No Value	No Value	No Value	All-Default<=2yrs
DeliveryType	NonUpStrm PreRebDown	No Value	No Value	No Value	PreRebDown
GSIA	Res-DW-SCG	No Value	No Value	No Value	Res-DW-SCG

- Offering
  - ❑ Two tiers available: ENERGY STAR and ENERGY STAR Most Efficient
  - ❑ One capacity (10,000 BTU offered) to address 10 variants in the Federal Code

- Stage 1 Issues
  - ❑ Added a delivery type to distinguish RPP (Midstream-RPP)

- Measure Extension
  - ❑ Added measure for POUs
  - ❑ RPP itself, as a delivery platform, can be adopted by POU irrespective of eTRM

- Stage 2 Issues
  - ❑ *Measure updates will occur annually for RPP; agile process needed to incorporate this in timely manner*
  - ❑ *Remove PA dependencies, which are due to interactive effects*

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

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Res	Res	No Value	No Value	No Value
BldgVintage	Any	Any	No Value	No Value	No Value
BldgLoc	Any	IOU	No Value	No Value	No Value
BldgHVAC	Any	rWtd	No Value	No Value	No Value

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	No Value	No Value	No Value
NormUnit	Each	Each	No Value	No Value	No Value
EUL ID	HV-RAC-ES	9 yrs	No Value	No Value	No Value
NTGR	Res-sAll-mHVAC-RmAC-dn Res-sAll-mHVAC-RmAC-mid	0.36	No Value	No Value	No Value
DeliveryType	MidStream-RPP	MidStream	No Value	No Value	No Value
GSIA	Def-GSIA	Def-GSIA	No Value	No Value	No Value

Measure Consensus
7.14b – Residential Room Air Cleaner

- Offering
  - Two tiers available: ENERGY STAR and ENERGY STAR Most Efficient
  - Three sizes based upon Clean Air Delivery Rate (CADR)
    - <100, 100-150, and >150
- Stage 1 Issues
  - Savings based upon RASS EUC and Evaluation Report that are distinguished by climate zone, but not by PA
  - RPP is a platform that combines measure offerings with a delivery mechanism
  - Need to deconstruct into measures while preserving the unique aspects of RPP
- Measure Extension
  - Added measure for POUs
  - RPP itself, as a delivery platform, can be adopted by POU irrespective of eTRM
- Stage 2 Issues
  - *Measure updates will occur annually for RPP; agile process needed to incorporate this in timely manner*

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

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Res	Res	No Value	No Value	No Value
BldgVintage	Any	Any	No Value	No Value	No Value
BldgLoc	Any	IOU	No Value	No Value	No Value
BldgHVAC	Any	rWtd	No Value	No Value	No Value

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	No Value	No Value	No Value
NormUnit	Each	Each	No Value	No Value	No Value
EUL ID	Res-AirCleaner	9 yrs	No Value	No Value	No Value
NTGR	Res-sAll-mRfg-DG Res-sAll-RmAirCleaner-mid	0.2	No Value	No Value	No Value
DeliveryType	MidStream-RPP	MidStream	No Value	No Value	No Value
GSIA	Def-GSIA	Def-GSIA	No Value	No Value	No Value

Measure Consensus
7.15 – Networked PC Power Management

CALIFORNIA
TECHNICAL FORUM

- ● **Offering**
  - ❑ Centralized power management control system for networked desktop computers and monitors in offices, schools
  - ❑ 8 Building Types: ECC, EPr, ERC, ESe, EUn, OfL, OfS, COM
- ● **Stage 1 Issues**
  - ❑ Prior evaluation recommends first-year energy savings be decayed to reflect technological advances
    - ✕ Current work paper uses 5% decay value
    - ✕ eTRM matches the current workpaper values
  - ❑ Used IOU weighted average interactive effects for IOUs and average value for POUs
- ● **Stage 2 Issues**
  - ❑ *Determine whether to sunset this measure altogether in next 3-5 years*
  - ❑ *Create a weighted statewide value*

TRC shown with respect to previous workpaper values

TRC Change

	SCE/PG&E
Secondary School	-33%
University	-14%

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	-27%	-31%	-29%		-29%
kWh	-25%	-57%	-27%		-39%
Therms	-32%	-77%	-41%		-49%
Cost	11%	76%	0%		24%

Absolute Change & Comparison

	Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
kW	(6.29)	-29%	-1%	(3.34)	(2.85)	(0.11)	-
kWh	(825,451)	-39%	-21%	(292,747)	(522,516)	(10,188)	-
Therms	5,814	-49%	0%	2,331	3,434	50	-
Cost	$ 77,614	24%	1%	$ 27,744	$ 49,870	$ -	$ -

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Italics text = Item that has not been completed

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	OfL,OfS,Epr,Ese,Eun	Any	OfL,OfS,Epr,Ese,Eun	No Value	No Value
BldgVintage	Any	Any	Any	No Value	No Value
BldgLoc	Any	Any	Any	No Value	No Value
BldgHVAC	Any	cWtd	Any	No Value	No Value

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	REA	REA	No Value	No Value
NormUnit	Computer	Each	Computer	No Value	No Value
EUL ID	Plug-Software	Plug-Software	Plug-Software	No Value	No Value
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value	No Value
DeliveryType	PreRebDown DirInstall	PreRebDown	PreRebDown	No Value	No Value
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value	No Value

Measure Consensus
7.18 – Vending, Merch. Cooler Controller

(29)

- **Offering**
  - ❑ 6 Types: Controllers are add-on to existing equipment, including refrigerated beverage machines, snack machines, and refrigerated beverage coolers
- **Stage 1 Issues**
  - ❑ Work papers rely on DEER savings hours = 4 hours/day.
  - ❑ Equates to 16.7% annual energy savings of controlled load
  - ❑ This value does not comport with any other jurisdictional TRM
    - ✖ Annual savings closer to 86%
    - ✖ No evaluation or monitoring done in CA to support current value
  - ❑ No interactive savings, assumes all savings occur when building unoccupied
  - ❑ Cold vending machine calculation updated in 2016 but not yet reflected in claims
- **Measure Extension**
  - ❑ POU measure exists, relies on higher savings percent
- **Stage 2 Issues**
  - ❑ *Evaluation research should inform an updated hours of savings, as well as potential interactive impacts*

TRC shown with respect to existing Ex Ante Data values

TRC Change

	POU
Cold Vending Machine	-63%

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW					
kWh	-59%	-70%	-85%		-77%
Therms					
Cost	9%	-46%	17%		12%

Absolute Change & Comparison

	Total	% of Measure	% of Category	PGE	SCE	SDGE	SCG
kW	-		0%	-	-	-	-
kWh	(373,514)	-77%	-9%	(95,960)	(1,549)	(276,005)	-
Therms	-		0%	-	-	-	-
Cost	$ 13,694	12%	0%	$ 6,290	$ (665)	$ 8,069	$ -

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

Input Consensus
7.18 – Vending, Merch. Cooler Controller

30

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	SUn,Asm,DMo,ECC,EPr,ERC,ESe,EUn,Gro,Hsp,Htl,MFm,Mtl,Nrs,OfL,OfS,OTR,RFF,RSD,Rt3,RtL,RtSSCn,WRf	No Value	Asm,ECC,EPr,ERC,ESe,EUn,Gro,Hsp,Htl,MBT,MFm,MLl,Mtl,Nrs,OfL,OfS,RFF,RSD,Rt3,RtL,RtS,SCnWRf	No Value
BldgVintage	Ex	Ex	No Value	Ex	No Value
BldgLoc	Any	IOU	No Value	IOU,Any	No Value
BldgHVAC	Any	cWtd	No Value	Any	No Value

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	REA	REA	REA,RET	No Value
NormUnit	Each	Each	No Value	Flow-GPM	No Value
EUL ID	Plug-VendCtrler	Plug-VendCtrler	Plug-VendCtrler	Plug-VendCtrler	No Value
RUL ID	1/3 of 20 yrs	No Value	No Value	No Value	No Value
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs Res-Default>2	Com-Default>2yrs	Com-Default>2yrs Res-Default>2	Com-Default>2yrs Res-Default>2	No Value
DeliveryType	DirInstall PreRebDown	Any	DirInstall PreRebDown	DirInstall PreRebDown	No Value
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value

"Cal TF affirms the subcommittee recommendations regarding 'Stage 1 Issues' for Appliance / Plug Loads Measures."

- 7.01, Energy Star Refrigerator
- 7.03, Refrigerator and Freezer Recycling
- 7.04, Energy Star Clothes Dryers
- 7.05, Energy Star Clothes Washers
- 7.09, Ozone Laundry Nonresidential
- 7.12, Residential Energy Star Dishwasher

- 7.14a, Room Air Conditioners
- 7.14b, Room Air Cleaners
- 7.15, Power Management Software for Networked Computers
- 7.16, Smart / Tier 2 Advanced Power Strips
- 7.18, Vending and Beverage Merchandise Controller

- Any questions, feedback, or issues, please reach out!
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Thank You!