

# Food Services

## Cal TF Tier 2 Presentation





**AYAD AL-SHAIKH**  
**OCTOBER 2017**

# Define Measures

## Original Measure List

3

No.	Measure Names	Plan	PG&E	SCE	SDG&E	SCG	POU
2.01	Commercial Convection Oven	2017					
2.02	Commercial Dishwashers	2017					
2.03	Commercial Combination Oven	2017					
2.04	Commercial Griddles	2017					
2.05	Commercial Steamers	2017					
2.06	Commercial Ice Machines	2017					
2.07	Insulated Hot Food Holding Cabinets	2017					
2.08	Commercial Conveyor Oven-Gas	2017					
2.09	Commercial Electric Deck Oven	2017					
2.10	Commercial Hand Wrap Machines	2017					
2.11	Gas & Electric Fryers	2017					
2.12	Exhaust Hood Demand Controlled Ventilation	2017					
2.13	Low-Flow Pre-Rinse Spray Valves	2017					
2.14	Rack Oven	2018					
2.15	Finned-Bottom Stock Pot (Foodservice)	n/a					
2.16	Commercial Pressure Fryer	n/a					
2.17	Commercial High Density Universal Holding Cabinets	2017					
2.18	Reach in RefFreezer	Moved					

 Lead Workpaper  
 Supporting Workpaper

# Define Measures

## Final Measure List

4

No.	Measure Names	Plan	PG&E	SCE	SDG&E	SCG	POU
2.01	Commercial Convection Oven - Gas & Electric	2017					
2.02	Commercial Dishwashers	2017					
2.03	Commercial Combination Oven - Gas & Electric	2017					
2.04	Commercial Griddles - Gas & Electric	2017					
2.05	Commercial Steamers - Gas & Electric	2017					
2.06	Commercial Ice Machines	Hold - Code Change					
2.07	Insulated Hot Food Holding Cabinets - Electric	2017					
2.08	Commercial Conveyor Oven - Gas	2017					
2.09	Commercial Deck Oven - Electric	2017					
2.10	Commercial Hand Wrap Machines - Electric	2017					
2.11	Commercial Fryers - Gas & Electric	2017					
2.12	Exhaust Hood Demand Controlled Ventilation	2017					
2.13	Low-Flow Pre-Rinse Spray Valves	2017					
2.14	Commercial Rack Oven-Gas	2017					
2.15	Finned-Bottom Stock Pot (Foodservice)	n/a	Sunset				
2.16	Commercial Pressure Fryer	n/a	Sunset				
2.17	Commercial High Density Universal Holding Cabinets -	2017					
2.18	Reach in RefFreezer	Moved to Com Refrig					
2.19	Upright, Door-Type Dishwasher	In Development by PG&E					

Blue text = Changed item

# Measure Consensus

## 2.01 – Commercial Convection Oven

5

### • Offerings

- ❑ Half and Full
- ❑ Electric and Gas
- ❑ Removed Full Large Oven Offering

### • Stage 1 Issues

- ❑ Updated cost data – increased cost
- ❑ Minor Net Savings and TRC adjustment

### • Stage 2 Issues

- ❑ Addressing 30% reduction disposition waiting for final CEC Study that is expected in Q1 2018
- ❑ Update base and measure case inputs with 2017 QPL

Full-Size Convection Oven



#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	-9%		-33%		-10%
kWh	0%		-30%		-1%
Therms	0%		-30%	0%	-1%
Cost	5%		-58%	3%	2%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	(1.49)	-10%	0%
kWh	(837)	-1%	0%
Therms	(1,013)	0%	0%
Cost	\$ 21,108	3%	0%

#### TRC Change

	Gas	Electric
Half	-36%	-3%
Full	-3%	-12%
Weighted	-3%	

# Summary Table Details

6

## Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	-9%		-33%		-10%
kWh	0%		-30%		-1%
Therms	0%		-30%	0%	-1%
Cost	5%		-58%	3%	2%

## Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	(1.49)	-10%	0%
kWh	(837)	-1%	0%
Therms	(1,013)	0%	0%
Cost	\$ 21,108	3%	0%

- Percent Change Within Measure
  - ❑ Change of savings/cost from 2016 values to eTRM values
  - ❑ Uses claims quantities from 2016 values
  - ❑ End of year values are used in comparison
    - ✦ Note that sometimes values change throughout the year
    - ✦ Best indication of what the value would have been in the following year
- Absolute Change & Comparison
  - ❑ Total – Translates percentages to total value

# Measure Consensus

## 2.01 – Commercial Convection Oven

7

### • Offerings

- ❑ Half and Full
- ❑ Electric and Gas
- ❑ Removed Full Large Oven Offering

### • Stage 1 Issues

- ❑ Updated cost data – **increased cost**
- ❑ **Minor Net Savings and TRC adjustment**

### • Stage 2 Issues

- ❑ *Addressing 30% reduction disposition waiting for final CEC Study that is expected in Q1 2018*
- ❑ *Update base and measure case inputs with 2017 QPL*

Full-Size Convection Oven



#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	-9%		-33%		-10%
kWh	0%		-30%		-1%
Therms	0%		-30%	0%	-1%
Cost	5%		-58%	3%	2%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	(1.49)	-10%	0%
kWh	(837)	-1%	0%
Therms	(1,013)	0%	0%
Cost	\$ 21,108	3%	0%

#### TRC Change

	Gas	Electric
Half	-36%	-3%
Full	-3%	-12%
Weighted	-3%	

# Summary Table Details

8

## TRC Change

	Gas	Electric
Half	-36%	-3%
Full	-3%	-12%
Weighted	-3%	

## • Cost Effectiveness values

❑ Uses CET Desktop, v18.1

❑ Assumptions:

- ✦ 2017 avoided costs, 5% Market Effects Benefit/Cost (default)
- ✦ Program and Admin costs set to zero – see differences
- ✦ Rebate values taken from PG&E catalog (only one value)
- ✦ Calculated for various offerings, but “weighted” based upon 2016 claims quantities
- ✦ Typically, only one baseline per offering (not PA specific)

The screenshot shows the CET Desktop software interface. The title bar reads 'CET Desktop The Cost Effectiveness Tool'. The navigation menu includes 'Home', 'Results', 'Settings', and 'Help'. The main form is titled 'Enter Source Information' and contains the following fields:

- Avoided Cost Version:** A dropdown menu set to '2017'. A note below it says 'To change default database go to Settings - Set Database Version tab'.
- Job Description (optional):** A text input field with the placeholder 'Optional. Enter a description to identify the job'.
- Source Type - Format:** A dropdown menu set to 'Excel - CET input file'.
- Source File:** A text input field with the placeholder 'Select the location for the input file' and a file selection icon.
- Market Effects Benefits %:** A text input field set to '5'.
- Market Effects Costs %:** A text input field set to '5'.
- First Year of Implementation:** A dropdown menu set to '2017'.
- Include All Non-savings Program Costs:** An unchecked checkbox.

At the bottom of the form, there is a status bar showing 'CET Desktop Version: 18.1', 'Database Name and Version: CET\_2018 (18.1)', and 'Avoided Cost Version: 2017'. A 'Go' button with a right arrow icon is located at the bottom right.

# Measure Consensus

## 2.01 – Commercial Convection Oven

### • Offerings

- ❑ Half and Full
- ❑ Electric and Gas
- ❑ Removed Full Large Oven Offering

### • Stage 1 Issues

- ❑ Updated cost data – **increased cost**
- ❑ **Minor Net Savings and TRC adjustment**

### • Stage 2 Issues

- ❑ *Addressing 30% reduction disposition waiting for final CEC Study that is expected in Q1 2018*
- ❑ *Update base and measure case inputs with 2017 QPL*

Full-Size Convection Oven



#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	-9%		-33%		-10%
kWh	0%		-30%		-1%
Therms	0%		-30%	0%	-1%
Cost	5%		<b>-58%</b>	3%	2%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	(1.49)	-10%	0%
kWh	(837)	-1%	0%
Therms	(1,013)	0%	0%
Cost	\$ 21,108	3%	0%

#### TRC Change

	Gas	Electric
Half	-36%	-3%
Full	-3%	-12%
Weighted	-3%	



# Input Consensus

## 2.01 – Commercial Convection Oven

10

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	Any	Any	Com	Any
BldgVintage	Any	Any	Any	Ex	Any
BldgLoc	Any	Any	Any	Any	Any
BldgHVAC	Any	cWtd	Any	Any	Any

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	ROBNC	ROB	ROB
NormUnit	Each	Each	Each Unit	Each	Each
EUL ID	Cook-ElecConvOven Cook-GasConvOven	Cook-ElecConvOven Cook-GasConvOven	Cook-ElecConvOven	Cook-ElecConvOven Cook-GasConvOven	Cook-ElecConvOven Cook-GasConvOven
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	NonUpStrm PreRebDown	PreRebDown	PreRebDown	PreRebDown	PreRebDown PreRebUp
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA

# Measure Consensus

## 2.02 – Commercial Dishwasher

### ● Offering

- ❑ Tier 2 only
- ❑ Permutations included for High Temp and Low Temp
- ❑ Current methodology does not differentiate based upon Climate Zone; retaining that methodology (but applied across all Climate Zones)
- ❑ Removed Tier 1 savings threshold. Published data on shipments already shows high adoption

### ● Stage 1 Issues

- ❑ Increased POU EUL
- ❑ Decreased POU Offerings; new Measure expected for Upright, Door-Type Dishwasher
- ❑ Decreased POU savings from an older methodology due to number of racks/day estimate, which is based upon best available data
- ❑ Savings average over all Climate Zones rather than just PG&E Climate Zones

### ● Stage 2 Issues

- ❑ *Improve data on water savings; reported to be conservative*
- ❑ *Improve data on number of racks per day*

#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	No Claims in 2016				0%
kWh					0%
Therms					0%
Cost					0%



# Input Consensus

## 2.02 – Commercial Dishwasher



12

- Measure Permutations

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

- Measure Implementation

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

# Measure Consensus

## 2.03 – Commercial Combination Oven

Combination Oven:



13

### • Offerings

- Permutations vary with Offerings (<15, 15 – 28, >28 Pan Models)
- Electric and Gas

### • Stage 1 Issues

- Updated cost data – increase for <15, 15-28 Pans; decreased for >28 Pans
  - ✦ Methodology revised to use direct quotes (not AutoQuotes) because of large variation in cost from brand to brand
  - ✦ Caused by different marketing strategy for this largely imported
- TRC changes link to cost adjustment
- SCE number of days updated from 355 to 365 days/yr. This keeps values consistent throughout the whole sector so that hours can be changed uniformly after being normalized to 365 days/yr.

### • Stage 2 Issues

- *Update base and measure case inputs with 2017 QPL*

#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	-1%	-3%	1%		-3%
kWh	0%	3%	0%		3%
Therms	0%		0%	0%	0%
Cost	10%	-84%	14%	5%	-55%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	(7.90)	-3%	-1%
kWh	34,335	3%	1%
Therms	8	0%	0%
Cost	\$ (885,293)	-51%	-14%

#### TRC Change

	Gas	Electric
Small	-5%	-13%
Medium	-11%	-13%
Large	18%	46%
Weighted	-6%	

# Input Consensus

## 2.03 – Commercial Combination Oven

Combination Oven:



14

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	Any	Any	Com	Any
BldgVintage	Any	Any	Any	Ex	Any
BldgLoc	Any	Any	Any	IOU	Any
BldgHVAC	Any	cWtd	Any	Any	Any

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	ROBNC	ROB	ROB
NormUnit	Each	Each	Each	Each	Each
EUL ID	Cook-ElecCombOven Cook-GasCombOven	Cook-ElecCombOven Cook-GasCombOven	Cook-ElecCombOven	Cook-ElecCombOven Cook-GasCombOven	Cook-GasCombOven 0
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs Com-Default-HTR-di
DeliveryType	NonUpStrm PreRebDown	PreRebDown	PreRebDown	PreRebDown	PreRebDown PreRebUp
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA

# Measure Consensus

## 2.04 – Commercial Griddles

### • Offerings

- ❑ Savings estimated “per foot”
- ❑ Electric and Gas

### • Stage 1 Issues

- ❑ Updated cost data – **increased cost**
- ❑ SCE number of days updated from 355 to 365 days/yr. This keeps values consistent throughout the whole sector so that inputs can be changed uniformly.
- ❑ SCE Normalized Idle Energy Rate (W/ft<sup>2</sup>) updated from 355 to 293 W/ft<sup>2</sup> that represents values from the latest QPL

### • Stage 2 Issues

- ❑ *Update base and measure case inputs with 2017 QPL*
- ❑ *Should double griddles and single griddles be treated differently*



#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	1%				1%
kWh	0%				0%
Therms	0%		1%	0%	0%
Cost	107%		57%	-48%	-28%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	0.06	1%	0%
kWh	68	0%	0%
Therms	63	0%	0%
Cost	\$ (29,842)	-28%	0%

#### TRC Change

	Gas	Electric
IOU	-24%	-40%
Weighted	-26%	

# Input Consensus

## 2.04 – Commercial Griddles

16



- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	Any	Any	Com	Any
BldgVintage	Any	Any	Any	Ex	Any
BldgLoc	Any	Any	Any	IOU	Any
BldgHVAC	Any	cWtd	Any	Any	Any

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	ROBNC	ROB	ROB
NormUnit	Len-ft	Len-ft	Len-ft	Len-ft	Len-ft
EUL ID	Cook-ElecGriddle Cook-GasGriddle	Cook-ElecGriddle Cook-GasGriddle	Cook-ElecGriddle	Cook-ElecGriddle Cook-GasGriddle	Cook-GasGriddle Cook-ElecGriddle
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	NonUpStrm PreRebDown	No value	PreRebDown	PreRebDown	PreRebDown PreRebUp
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA

# Measure Consensus

## 2.05 – Commercial Steamers



- Offerings

- Electric and Gas

- Stage 1 Issues

- Updated cost data – increased electric; decreased gas
  - POU savings increase based upon updated methodology (Unknown Standby Loss factor)

- Stage 2 Issues

- Update base and measure case inputs with 2017 QPL*
  - Addressing 30% reduction disposition*

### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	0%	-30%			-10%
kWh	0%	-30%			-10%
Therms			-30%	0%	-2%
Cost	32%	-53%	-38%	-38%	-25%

### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	(7.49)	-10%	-1%
kWh	(36,186)	-10%	-1%
Therms	(1,116)	-2%	0%
Cost	\$ (27,616)	-26%	0%

### TRC Change

	Gas	Electric
IOU	14%	-10%
Weighted	4%	



# Input Consensus

## 2.05 – Commercial Steamers

18



- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	Any	Any	Com	Any
BldgVintage	Any	Any	Any	Ex	Any
BldgLoc	Any	Any	Any	IOU Any	Any
BldgHVAC	Any	cWtd	Any	Any	Any

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	ROBNC	ROB	ROB
NormUnit	Each	Each	Each	Each	Each
EUL ID	Cook-ElecStmCooker Cook-GasStmCooker	Cook-ElecStmCooker Cook-GasStmCooker	Cook-ElecStmCooker	Cook-ElecStmCooker Cook-GasStmCooker	Cook-GasStmCooker Cook-ElecStmCooker
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	NonUpStrm PreRebDown	PreRebDown	PreRebDown	PreRebDown	PreRebDown PreRebUp
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA

# Measure Consensus

## 2.07 – Insulated Hot Food Holding Cabinets

19



### • Offerings

- ❑ Permutations vary by Capacity (Half and Full)
- ❑  $\frac{3}{4}$  sized unit offering was removed since no QPL units exist

### • Stage 1 Issues

- ❑ Updated cost data – no updated cost data available
  - ✦ Harmonized costs – SDG&E cost decreased; previously used a 40% reduction factor
- ❑ SDG&E and SCE Cabinet Volume (ft<sup>3</sup>) and Normalized Idle Energy Rate measure case inputs updated for consistency to the average QPL values of 2014:
  - ✦ Half size – 10 ft<sup>3</sup>, 5 W/ft<sup>3</sup>
  - ✦ Full size – 25 ft<sup>3</sup>, 11.3 W/ft<sup>3</sup>

### • Stage 2 Issues

- ❑ *Update base and measure case inputs with 2017 QPL*

#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	0%	-1%	75%		0%
kWh	0%	-1%	75%		0%
Therms					n/a
Cost	0%	-50%	-46%		-20%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	0.34	0%	0%
kWh	2,053	0%	0%
Therms	n/a	n/a	n/a
Cost	\$ (53,150)	-20%	-1%

#### TRC Change

	Gas	Electric
IOU	0%	0%
Weighted	0%	

# Input Consensus

## 2.07 – Insulated Hot Food Holding Cabinets



20

- Measure Permutations

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

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	ROBNC	ROB	No Value
NormUnit	Each	Each	Each	Each	No Value
EUL ID	Cook-HoldCab	Cook-HoldCab	Cook-HoldCab	Cook-ElecStmCooker	No Value
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	No Value
DeliveryType	PreRebDown	PreRebDown	PreRebDown	PreRebDown	No Value
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value

# Measure Consensus

## 2.08 – Commercial Conveyor Oven-Gas

21



### • Offerings

- ❑ Permutations vary by Capacity (Large  $\geq 25''$ )
- ❑ Capacity size of Small  $< 25''$  was removed since no QPL units existed

### • Stage 1 Issues

- ❑ Updated cost data – **increased cost; small data set**
  - ✦ 1 base and 3 measure case costs
  - ✦ Recommend not updating this cost
- ❑ Include reduction from Disposition for PG&E and SCG

### • Stage 2 Issues

- ❑ *Update base and measure case inputs with 2017 QPL*
- ❑ *Addressing 30% reduction disposition*
- ❑ *Consider basing savings on oven size based upon belt width and oven length*

#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW					n/a
kWh					n/a
Therms	-30%			-30%	-30%
Cost	121%			<b>458%</b>	217%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	n/a	n/a	n/a
kWh	n/a	n/a	n/a
Therms	(3,710)	-30%	0%
Cost	\$ 47,287	217%	1%

#### TRC Change

	Gas	Electric
IOU	-58%	n/a
Weighted	-58%	



# Input Consensus

## 2.08 – Commercial Conveyor Oven-Gas

22

- Measure Permutations

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

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	No Value	RET,ROB	ROB
NormUnit	Each	Each	No Value	Deck	Each
EUL ID	Cook-GasConvOven	Cook-GasConvOven	No Value	Cook-GasCombOVen	Cook-GasConvOven
NTGR	Com-Default>2yrs	Com-Default>2yrs	No Value	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	NonUpStrm PreRebDown	PreRebDown	No Value	PreRebDown	PreRebDown PreRebUp
GSIA	Def-GSIA	No Value	No Value	Def-GSIA	Def-GSIA

# Measure Consensus

## 2.09 – Commercial Electric Deck Oven

23

- Offering
  - ❑ Single offering
- Stage 1 Issues
  - ❑ New measure; low measure usage
- Measure Extension
  - ❑ Added measure for POUs
  - ❑ Added measure for PG&E and SDG&E
- Stage 2 Issues
  - ❑ None



### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	No Claims in 2016				0%
kWh					0%
Therms					0%
Cost					0%

Black text = Discussed in Sept Cal TF Meeting  
 Blue text = Not discussed in Sept Cal TF Meeting  
*Italics text* = Item that has not been completed

# Input Consensus

## 2.09 – Commercial Electric Deck Oven



24

- Measure Permutations

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

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	No Value	ROBNC	No Value	No Value
NormUnit	Each	No Value	Each	No Value	No Value
EUL ID	Cook-ElecCombOven	No Value	Cook-ElecCombOven	No Value	No Value
NTGR	Agric-Default>2yrs	No Value	Agric-Default>2yrs	No Value	No Value
	Com-Default>2yrs		Com-Default>2yrs		
	Ind-Default>2yrs		Ind-Default>2yrs		
DeliveryType	PreRebDown	No Value	PreRebDown	No Value	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	No Value	No Value

# Measure Consensus

## 2.10 – Commercial Hand Wrap Machines

25

- Offering
  - Single offering
- Stage 1 Issues
  - New measure; low measure usage
- Measure Extension
  - Added measure for POUs
  - Added measure for PG&E and SDG&E
- Stage 2 Issues
  - None



### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	No Claims in 2016				0%
kWh					0%
Therms					0%
Cost					0%

Black text = Discussed in Sept Cal TF Meeting  
 Blue text = Not discussed in Sept Cal TF Meeting  
*Italics text* = Item that has not been completed



# Input Consensus

## 2.10 – Commercial Hand Wrap Machines

26

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	No Value	Any,Gro,OfS	No Value	No Value
BldgVintage	Any	No Value	Any	No Value	No Value
BldgLoc	Any	No Value	Any	No Value	No Value
BldgHVAC	Any	No Value	Any	No Value	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	No Value	ROBNC	No Value	No Value
NormUnit	Each	No Value	Installation	No Value	No Value
EUL ID	FoodHandWrap	No Value	FoodHandWrap	No Value	No Value
NTGR	ET-Default	No Value	ET-Default	No Value	No Value
DeliveryType	PreRebDown	No Value	PreRebDown	No Value	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	No Value	No Value



# Measure Consensus

## 2.11 – Commercial Fryers, Gas & Electric

### • Offerings

- Permutations vary by Gas and Electric

### • Stage 1 Issues

- Updated cost data – **increased electric; decreased gas**
- PG&E Production Capacity updated to 71 lbs/hr (electric) – increase savings
- SDG&E Product Capacity updated to base case 60 lbs/hr and measure case 67 lbs/hr (gas) – decrease savings; **already harmonized at end of year**

### • Stage 2 Issues

- *Update base and measure case inputs with 2017 QPL*
- *Addressing 30% reduction disposition*



#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	20%				20%
kWh	3%				3%
Therms	0%		0%	0%	0%
Cost	-1%		0%	-1%	-1%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	0.56	20%	0%
kWh	537	3%	0%
Therms	1,261	0%	0%
Cost	\$ (17,131)	-1%	0%

#### TRC Change

	Gas	Electric
IOUs	-1%	-3%
Weighted	-1%	

# Input Consensus

## 2.11 – Commercial Fryers, Gas & Electric

28



- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	Any	Any	Com	Any
BldgVintage	Any	Any	Any	Ex	Any
BldgLoc	Any	Any	Any	IOU	Any
BldgHVAC	Any	cWtd	Any	Any	Any

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	ROBNC	RET ROB	ROB
NormUnit	Each	Each	Each	Vat Each	Each
EUL ID	Cook-ElecFryer Cook-GasFryer	Cook-ElecFryer Cook-GasFryer	Cook-ElecFryer	Cook-ElecFryer Cook-GasFryer	Cook-GasFryer
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	NonUpStrm PreRebDown	PreRebDown	PreRebDown	PreRebDown	PreRebDown PreRebUp
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA

# Measure Consensus

## 2.12 – Exhaust Hood Demand Controlled Ventilation

### • Offering

- ❑ Permutations vary by Climate Zone, for gas only (16 CZs)
  - ✦ Electric savings do not vary with Climate Zone



### • Stage 1 Issues

- ❑ CDF applied to demand values – decreased PG&E savings
- ❑ PG&E electric savings methodology the matches, but older values used

### • Stage 2 Issues

- ❑ *Significant variation in savings can be due to hours of use dependent upon building type. Improve as data becomes available.*

(gas savings not varying with Climate Zone)

Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	-10%	0%	0%		-8%
kWh	5%	0%	0%		4%
Therms	6%	-34%	1%		-4%
Cost	0%	-59%	0%		-21%

Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	(7.65)	-6%	-1%
kWh	28,233	3%	1%
Therms	(1,794)	-8%	0%
Cost	\$ (220,167)	-34%	-3%

TRC Change

	Gas/ Electric
PG&E	4%
SCE	72%
SDG&E	-2%
Weighted	27%

# Input Consensus

## 2.12 – Exhaust Hood Demand Controlled Ventilation

### • Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	Com	Any	Com,ECC,EPr,ERC,ESe, EUn,Gro,Hsp,Htl,Nrs, OfL,OfS,RFF,RSD	Com
BldgVintage	Any	Any	Any	Ex	Any
BldgLoc	Any	Any	Any	CZ06,CZ07,CZ08,CZ10,CZ1 4,CZ15	CZ06,CZ08,CZ10,CZ12,CZ1 3,CZ14,CZ15,CZ16
BldgHVAC	Any	cWtd	Any	Any	cWtd

### • Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROBNC	REA	REA	REA
NormUnit	Rated-HP	Rated-HP	Rated-HP	Rated-HP	Rated-HP
EUL ID	HVAC-EMS	HVAC-EMS	HVAC-EMS	HVAC-EMS	HVAC-EMS
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	PreRebDown	PreRebDown	PreRebDown	PreRebDown	PreRebDown
GSIA	Def-GSIA	No Value	Def-GSIA	Def-GSIA	No Value



# Measure Consensus

## 2.13 – Low-Flow Pre-Rinse Spray Valves



### ● Offering

- ❑ Permutations vary by Measure Case (0.65 gpm, 1.15 gpm)
- ❑ Permutations vary by Climate Zone (16 CZ)
  - ✦ Due to ground water temperature
- ❑ Removes offers with Measure Case of 1.07 gpm and 1.28 gpm

### ● Stage 1 Issues

- ❑ *Addressing – Hours/day updated to PG&E methodology (waiting for study)– increases savings*
- ❑ Base case reduced to 1.4 gpm to PG&E methodology to reflect lower baseline due to expected market conditions – decreases savings
- ❑ Expanded Climate Zone permutations to all zones since variation is about 11% across CA

### ● Measure Extension

- ❑ Added POU TRM measure

### ● Stage 2 Issues

- ❑ Consider a targeted DI for ultra low flow measure cases

#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW					n/a
kWh					n/a
Therms	-8%		-43%	-10%	-8%
Cost	-31%		-51%	-10%	-33%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	n/a	n/a	n/a
kWh	n/a	n/a	n/a
Therms	(8,605)	-49%	0%
Cost	\$ (36,614)	-91%	-1%

#### TRC Change

	Gas	Electric
PG&E	-3%	n/a
SCG	-32%	
SDG&E	-21%	
Weighted	-8%	

# Input Consensus

## 2.13 – Low-Flow Pre-Rinse Spray Valves



32

- Measure Permutations

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

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	No Value	ROB	REA
NormUnit	Each	Each	No Value	Each	Each Fixture
EUL ID	Cook-LowPreRinse	Cook-LowPreRinse	No Value	Cook-LowPreRinse	Agr-LPSNperm
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	All-Default<=2yrs	No Value	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	PreRebDown NonUpStrm PreRebDI	Any	No Value	DirInstall	PreRebDown NonUpStrm PreRebDI
GSIA	Def-GSIA	No Value	No Value	No Value	Def-GSIA

# Measure Consensus

## 2.14 – Commercial Rack Oven-Gas

33

### • Offering

- ❑ Permutations vary by Size (Single, Double)

### • Stage 1 Issues

- ❑ None.

### • Stage 2 Issues

- ❑ *Align specifications with Energy Star that would change the efficiency thresholds and add an Idle Rate specification. Multiple, less efficient units that would drop off the QPL – increases savings*
- ❑ *Update base and measure case inputs with 2017 QPL*



#### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW					n/a
kWh					n/a
Therms	0%			0%	0%
Cost	0%			0%	0%

#### Absolute Change & Comparison

	Total	% of Measure	% of Category
kW	n/a	n/a	n/a
kWh	n/a	n/a	n/a
Therms	972	0%	0%
Cost	\$ (22)	0%	0%

#### TRC Change

	Gas	Electric
Single	0%	n/a
Double	0%	
Weighted	0%	



# Input Consensus

## 2.14 – Commercial Rack Oven-Gas

34



- Measure Permutations

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

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	No Value	ROB	ROB
NormUnit	Each	Each	No Value	Each	Each
EUL ID	Cook-GasRackOven	Cook-GasRackOven	No Value	Cook-GasRackOven	Cook-GasRackOven
NTGR	Agric-Default>2yrs				
	Com-Default>2yrs	Com-Default>2yrs	No Value	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	NonUpStrm				PreRebDown
	PreRebDown	PreRebDown	No Value	PreRebDown	PreRebUp
GSIA	Def-GSIA	No Value	No Value	Def-GSIA	Def-GSIA

# Measure Consensus

## 2.17 – High Density Holding Cabinet

- Offering
  - ❑ Per unit
  - ❑ Combined 20- and 24-hour units to be consistent with ET Results
- Stage 1 Issues
  - ❑ Consolidated savings approaches for SCE and SDG&E
- Measure Extension
  - ❑ Added POU TRM measure
  - ❑ Added measure for PG&E
- Stage 2 Issues
  - ❑ None



### Percent Change Within the Measure

	PGE	SCE	SDGE	SCG	Total
kW	No Claims in 2016				0%
kWh					0%
Therms					0%
Cost					0%

# Input Consensus

## 2.17 – High Density Holding Cabinet

36

- Measure Permutations

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

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	No Value	ROBNC	RET,ROB	No Value
NormUnit	Each	No Value	System	Each	No Value
EUL ID	Cook-HoldCab	No Value	Cook-HoldCab	No Value	No Value
NTGR	ET-Default	No Value	ET-Default	Com-Default>2yrs	No Value
DeliveryType	PreRebDown	No Value	PreRebDown	PreRebDown	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	Def-GSIA	No Value

# Moving Forward to Stage 2

37

- Disposition Updates
- Base Case / Measure Case Updates

# Stage 2 Changes

## Disposition that Reduces Savings by 30%

38

- Re-visit addressing this Disposition as part of Stage 2

PGE PGECOFST101 Convection Oven	Approval upon inclusion of the following revisions: 1. Energy Division believes that operating hours, food production rates and baseline efficiencies contribute to overly optimistic UES calculations and recommend a 30% reduction in UES values for this group of measures.
SCG SCGWP080331B Conveyor Oven	
PGE PGECOFST102 Fryer - Electric and Gas	
PGE PGECOFST104 Steam Cookers	

### ❑ Documenting normalized “Operating Hours”

- ✦ From: 12 hrs/day normalized to 365 days/year
- ✦ To: 13.4 hrs/day normalized to 365 days/year

### ❑ Updating Baseline Efficiency and Production Rates

- ✦ Not directly substantiated, but added to study scope

- Recommend an interim value for POUs
- Stage 2: Published data required to support the eTRM values
  - ❑ CEC Published study expected in Q1 2018

# Food Service Sources

- Context:

- Efficiency testing is not required, so typically baseline equipment is not tested.
- Some manufactures allowed testing in exchange for the information to be used generally.

- Issues:

- Don't have access to the underlying values for the **FSTC Proprietary Database** or the **2002 FSTC Technology Assessment Report** so we can't verify or reproduce the input values.
- Don't know the timeframe for the tests or equipment so we don't know if they represent current baseline conditions.

#	Measure Name	Base Case	Measure Case
2.01	Convection Oven	<b>FSTC Prop Dbase</b>	QPL testing
2.02	Dishwashers	Avg of 5 sites and min ES spec	Energy Star
2.03	Combination Oven	<b>FSTC Prop Dbase</b>	QPL testing
2.04	Griddles	<b>FSTC Prop Dbase</b>	QPL testing
2.05	Steamers	<b>2002 FSTC Study</b>	QPL testing
2.07	Insulated Hot Food Holding Cabinets	Title 20 code	CEC MAEDBS
2.08	Conveyor Oven-Gas	<b>2002 FSTC Study</b>	QPL testing
2.09	Electric Deck Oven	<b>FSTC Prop Dbase</b>	QPL testing
2.10	Hand Wrap Machines	SCE ET field study	SCE ET field study
2.11	Gas & Electric Fryers	<b>FSTC Prop Dbase</b>	QPL testing
2.12	Exhaust Hood Demand Controlled Ventilation	11 monitored sites	11 monitored sites + 72 add'tl sites
2.13	Low-Flow PRSV Direct Install	Code / CUWCC evaluation study	
2.14	Rack Oven	<b>FSTC Prop Dbase</b>	QPL testing
2.17	High Density Universal Holding Cabinets	SCE ET field study	SCE ET field study

# Stage 2 – Potential Changes Without a Baseline Change

No.	Measure Names	Plan	Expected Change
2.01	Commercial Convection Oven	2017	Increase (-1% to 31%)
2.03	Commercial Combination Oven	2017	Increase (50% to 151%)
2.04	Commercial Griddles	2017	Increase (22% to 108%)
2.05	Commercial Steamers	2017	Little Change (-1% to 3%)
2.06	Commercial Ice Machines	Hold	
2.07	Insulated Hot Food Holding Cabinets	2017	Little Change (-3% to -6%)
2.08	Commercial Conveyor Oven-Gas	2017	Increase (78%)
2.11	Gas & Electric Fryers	2017	Little Change (-1% to 6%)
2.14	Rack Oven	2017	Increase (18% to 36%)

- Note:

- Newer QPL's include more efficient units
- 5 Measures not using Qualified Product List (QPL) for calculation inputs
  - ✦ Dishwashers, Deck Oven, Hand Wrap Machines, Exhaust Hood DCV, Pre-Rinse Spray Valves