

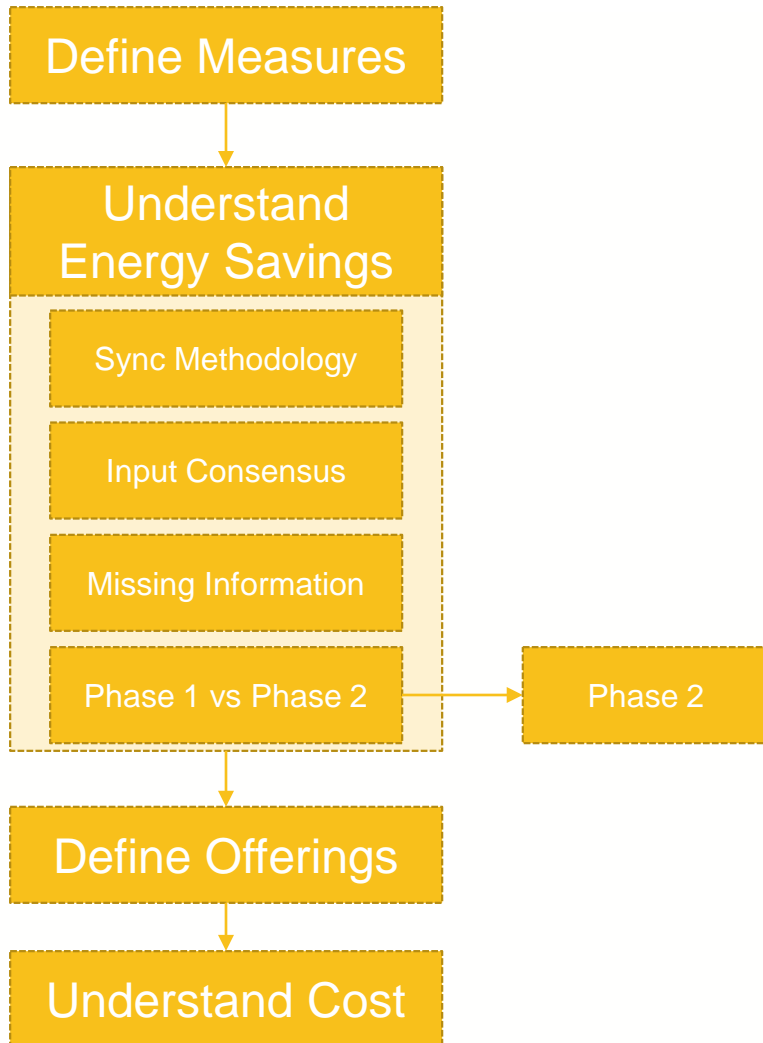
Food Services Measure Consolidation



AYAD AL-SHAIKH
SEPTEMBER 2017

Food Services Consolidation Overview

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
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 - ✦ Restructure Rack Oven (Energy Star)
 - ✦ Update Ice Machine (Code)
 - ✦ Review new Upright Dishwasher (New)

Define Measures

Original Measure List

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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

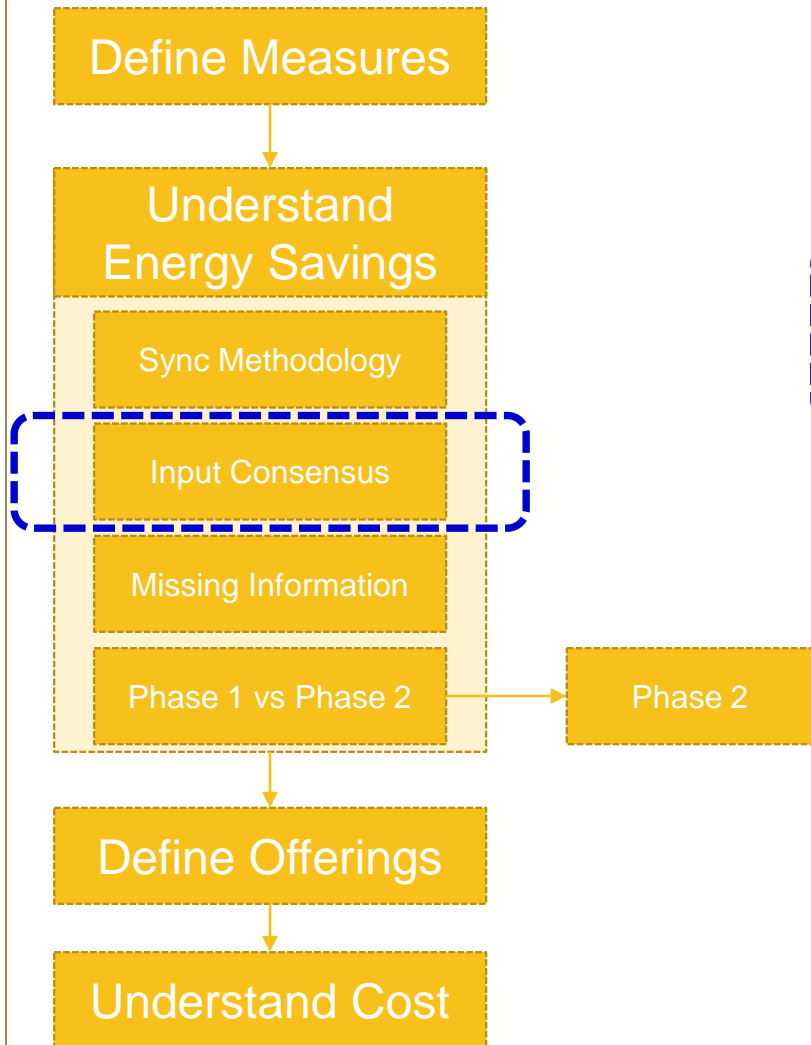
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No.	Measure Names	Plan	PG&E	SCE	SDG&E	SCG	POU
2.01	Commercial Convection Oven - Gas & Electric	2017					
2.02	Commercial Dishwashers	2017					
2.03	Commercial Combination Oven - Gas & Electric	2017					
2.04	Commercial Griddles - Gas & Electric	2017					
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

Food Services Consolidation Overview

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 - ✦ Review new Upright Dishwasher (New)



Input Consensus

Ex: 2.01 – Convection Oven

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- 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

Illustrative example of the Measure Data alignment

Not asking Cal TF Members to sign-off on these values; Asking IOU/POUs to review this data

Data Specification Slides

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- Source date of Ex Ante data tables:
 - ❑ PG&E (3/9/17)
 - ❑ SCE (5/24/17)
 - ❑ SCG (4/19/17)
 - ❑ SDG&E (4/19/17)
- Note that this information continually changes due to
 - ❑ New workpapers
 - ❑ DEER updates
 - ❑ Ex Ante review
 - ❑ Etc...



Input Consensus

Ex: 2.01 – Convection Oven

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- 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

Any – Implies that any *valid* Building Type from the approved CEDARS list can be submitted with a claim and be approved. Consideration was discussed to use a more specific list, but since kitchens exist in so many building types, it was decided that it was more appropriate to be inclusive of all projects where the deemed savings would still be appropriate.

NOTE – The hours of operation per day will be a weighted average of the various building types in this sector.

NOTE – The specific Building Type must be submitted with a claim or it would be rejected.

NOTE – Aligning this field with the Sector and NTG_ID is critical. This requires that these fields allow for Commercial, Industrial, and Agricultural installations.



Input Consensus

Ex: 2.01 – Convection Oven

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- 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

Any – Implies that this installation could be both “Existing” and “New Construction”.

NOTE – A newly created Measure Application Type of “ROBNC” is typically for the Food Service sector that would accommodate both “Ex” and “New”.

NOTE – The specific Building Vintage must be submitted with a claim or it would be rejected.

Input Consensus

Ex: 2.01 – Convection Oven

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- 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

Any – Implies that savings does not vary with Climate Zone.



Input Consensus

Ex: 2.01 – Convection Oven

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- 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

Any – Implies that there are no interactive effects that are being considered with this measure. Therefore, any building HVAC system would be appropriate and savings would not be impacted.

NOTE – The specific BldgHVAC would not need to be submitted with the claim if 'Any' is chosen.



Input Consensus

Ex: 2.01 – Convection Oven

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• 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

ROBNC – Implies that this could be a “Replace on Burnout” or “New Construction” installation. This MeasureAppType has implications on both Cost, EUL, and Savings Baseline. The rules for both ROB and NC are identical.

Installation Type	Savings		Life		Installation Type	Incremental Measure Cost	Full Measure Cost	
	1 st Baseline (BL)	2 nd BL	1 st BL	2 nd BL			1 st Baseline	2 nd Baseline
Replace on Burnout (ROB)	Above Code or Standard	N/A	EUL	N/A	ROB	(MEC + MLC) – (BEC + BLC)	(MEC + MLC) – (BEC + BLC)	N/A
New Construction (NEW/NC)	Above Code or Standard	N/A	EUL	N/A	NEW/NC			

Input Consensus

Ex: 2.01 – Convection Oven

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- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROBNC	ROBNC	ROB	ROB
NormUnit	Each	Each	Each Unit	Each	Each
FUL_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

NTGR-ID – Must match with potential building type submittals so that data discrepancies do not occur when checked in CEDARS.



Input Consensus

Ex: 2.01 – Convection Oven

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- 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

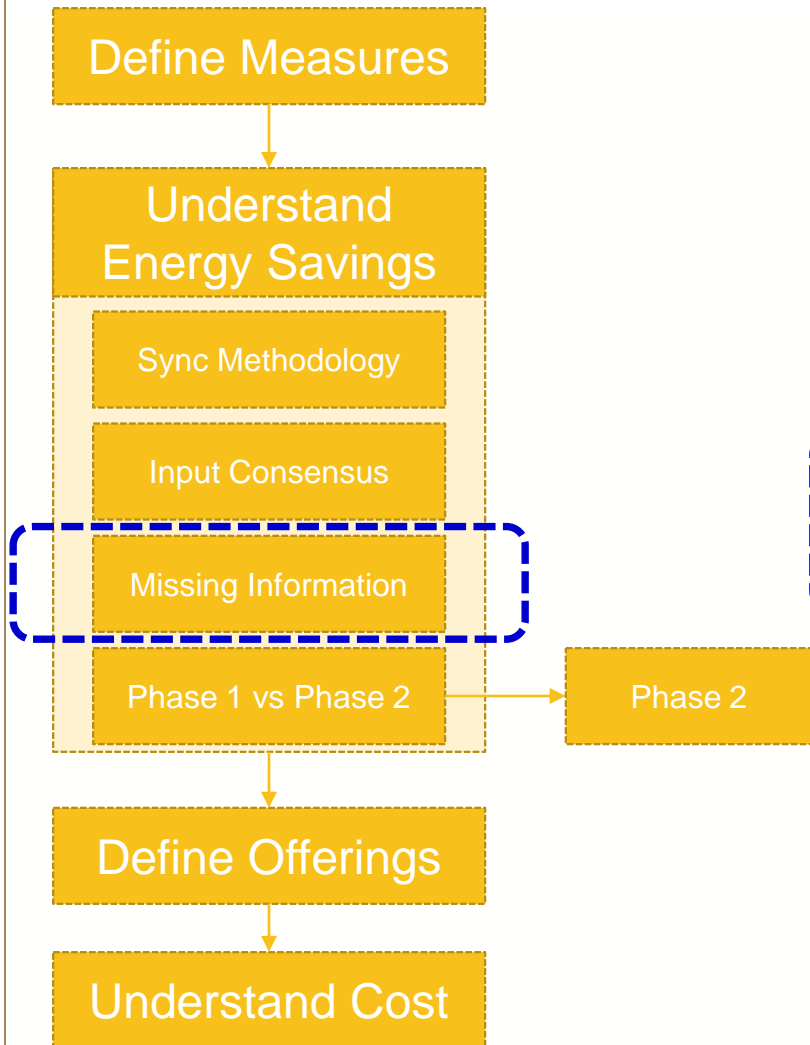
PreRebDown – The customer installs qualifying energy efficient equipment and submits an incentive application to the utility program. Upon application approval, the utility program pays an incentive to the customer.

NonUpStrm – (ie, Midstream) The program gives a financial incentive to a midstream market actor, such as a retailer or contractor, to encourage the promotion of efficient measures. The incentive may or may not be passed on to the end-use customer.

Note – Avoid competing Delivery Types (Upstream and Downstream) to avoid double-counting savings.

Food Services Consolidation Overview

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Missing Information Cost Update

- Affected Measures

No.	Measure Names	Plan	PG&E	SCE	SDG&E	SCG	POU
2.01	Commercial Convection Oven	2017					
2.03	Commercial Combination Oven	2017					
2.04	Commercial Griddles	2017					
2.05	Commercial Steamers	2017					
2.07	Insulated Hot Food Holding Cabinets	2017					
2.08	Commercial Conveyor Oven-Gas	2017					
2.11	Gas & Electric Fryers	2017					

- Cost data updated using 2016 AutoQuotes values from previous 2012 AutoQuotes values.
- AutoQuotes provides “List Prices”, but an average manufacturer discount is applied of 50%.
 - Methodology not changed; documenting reduction factor needs improvement

Missing Information Disposition that Reduces Savings by 30%

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No.	Measure Names	Plan	PG&E	SCE	SDG&E	SCG	POU
2.01	Commercial Convection Oven	2017					
2.05	Commercial Steamers	2017					
2.08	Commercial Conveyor Oven-Gas	2017					
2.11	Gas & Electric Fryers	2017					

- Existing **30% reduction** in energy savings due to D-11-07-030
- “Best Available Data” collected:
 - 2017 CEC Study includes measured data on daily operating hours and baseline usage
 - 2014 CEC Study includes survey data on CA Food Service market for business hours/day and days/year
 - ET Study includes Fryer operational data for Full and Quick Service Restaurants

PGE PGECOFST101 Convection Oven SCG SCGWP080331B Conveyor Oven PGE PGECOFST102 Fryer - Electric and Gas PGE PGECOFST104 Steam Cookers	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.
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Missing Information Disposition that Reduces Savings by 30%

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- Documenting Hours of Operation

- From: 12 hrs/day for 365 days/year

- To:

		Number of Sites	Business Hours (hrs/day)	Measured Equipment Hours (hrs/day)	Business Days (Day/yr)	HOU (Hrs/yr)	Description
		Source: CEC 2014	CEC 2014	CEC 2017/ET	CEC 2014	(calc)	
Institutional	Educational Services	9,910	6.1		187.4	1,140	
	Health Care & Social Services	3,963	9.5		356.3	3,383	
	Correctional Services	412	8.1		359.4	2,914	
	Military Services	206	13.3		365.0	4,873	
	Accommodation Services	1,297	20.0		365.0	7,300	
	Recreation Services	1,166	8.0		250.9	1,998	
	Retail Services	2,239	12.0	18.6	365.0	6,789	Caterer
	Employee Food Services	809	12.0	15.6	250.0	3,892	Cafeteria
Commercial Independent	QSR	12,349	13.6	15.6	363.0	5,675	
	FSR	27,905	12.0	16.1	312.0	5,017	Restaurant
Commercial Small Chain	QSR	6,387	14.1	15.6	363.0	5,675	
	FSR	4,103	12.0	16.1	361.3	5,810	Restaurant
Commercial Large Chain	QSR	20,133	14.7	15.6	363.0	5,675	
	FSR	2,400	16.1	16.1	363.0	5,837	Restaurant
	Hotel	752		16.3	365.0	5,950	Hotel
				326.7		4,892	hrs/yr

13.40 hr/day
(equivalent at 365 day/yr)

Source 1: CHARACTERIZING THE ENERGY EFFICIENCY POTENTIAL OF GAS-FIRED COMMERCIAL FOODSERVICE EQUIPMENT, CEC, Oct 2014

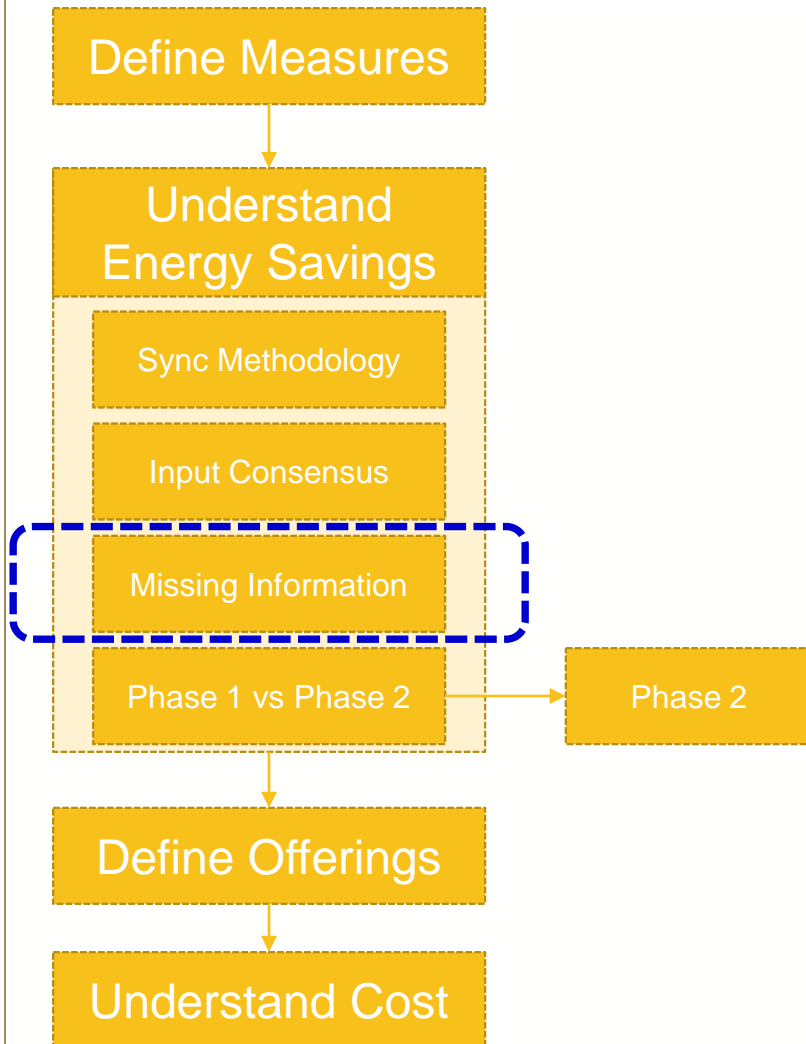
Source 2: CEC Study, 2017

Source 3: ET Study for Fryers (hours of operation per week data - QSR / FSR, 16 sites)

- Thanks to the support from the CEC and FSTC to provide important data early!

Food Services Consolidation Overview

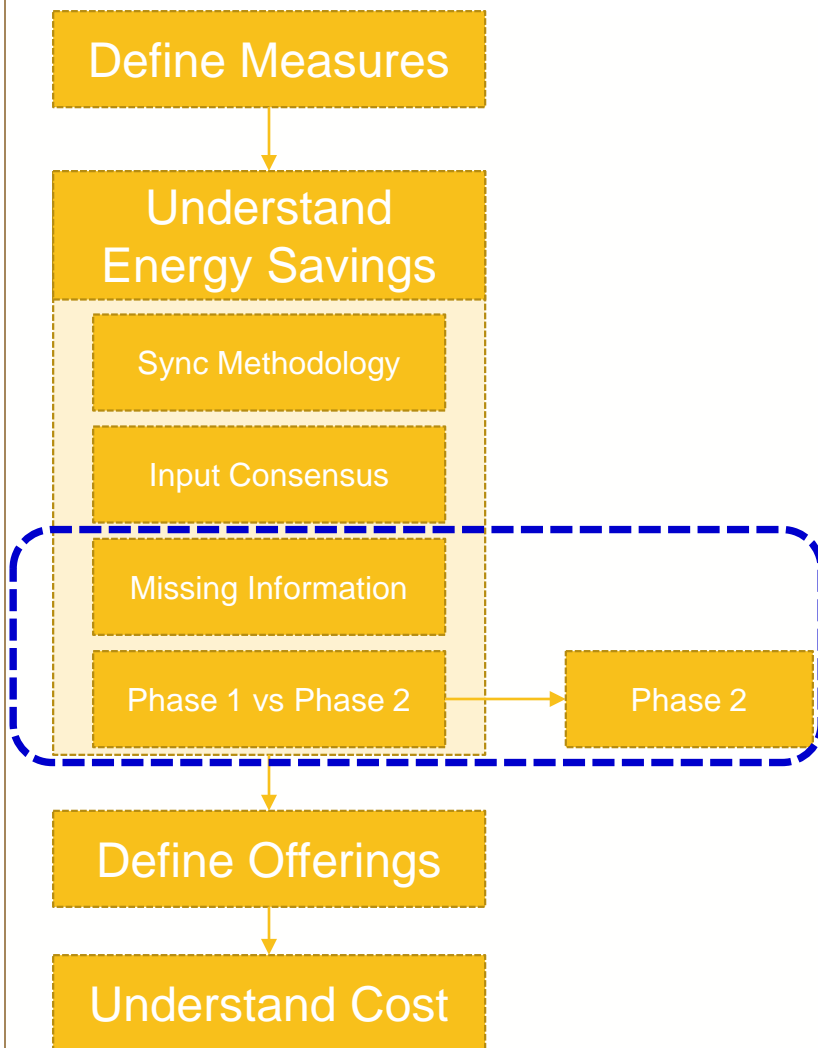
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Food Services Consolidation Overview

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 - ✦ Review new Upright Dishwasher (New)

Phase 2 Changes

Disposition that Reduces Savings by 30%

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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	

- Published data required to support the eTRM values
 - ❑ Expected in Q1 2018
- Documenting “Operating Hours”
 - ❑ From: 12 hrs/day for 365 days/year
 - ❑ To: 13.4 hrs/day for 365 days/year
- Baseline Efficiency and Production Rates
 - ❑ Not directly substantiated
- Revisit addressing this Disposition as part of Phase 2
- Recommend an interim value for POUs

Phase 2 Changes

Qualified Product List (QPL) Updates

- Update savings based upon “Best Available Data”
- Plan discussed:
 - Measure Case calculation inputs updated based upon current Qualified Products List (QPL) from 2017 to document latest average
 - Base Case calculation inputs reviewed based upon 2017 CEC Study
 - ✦ Have Measured Base Case data → concerned that degradation effects are unknown
 - ✦ Have Base Case model numbers → Attempt to find test specifications to make analysis comparable
 - Note that testing of units is not mandatory, so less efficient units are typically not tested
 - ✦ Additional market survey data may be required
- Additional thoughts on how to proceed...

Phase 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

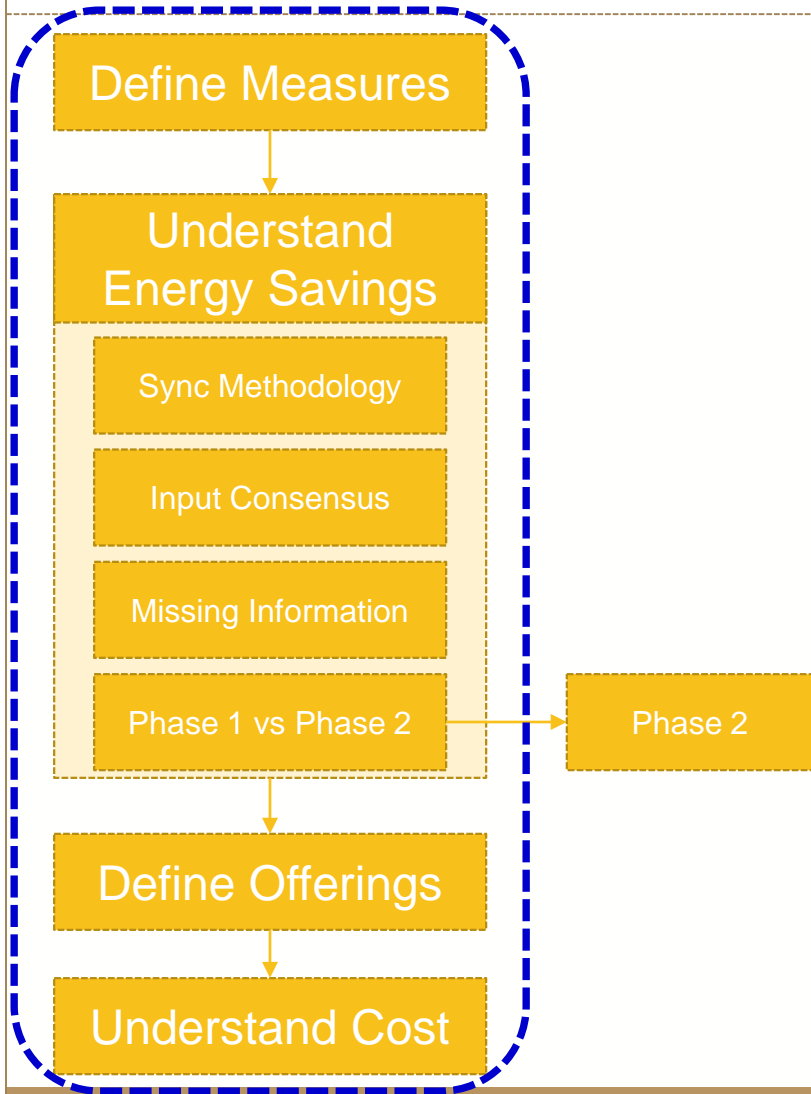
Phase 2 Changes

Measure Specific Issues

- Update Ice Machine (Code)
 - Workpaper development completion expected 10/2017
 - Energy Star Version 3, effective 1/1/2018
- Review new Upright Dishwasher (New)
 - Workpaper development completion expected in 2017
- Restructure Rack Oven (Energy Star)
 - Alignment with Energy Star
 - QPL requirements more stringent → Less efficient units drop off the list
 - QPL updated → Calculation inputs require updating
 - Savings increase

Food Services Consolidation Overview

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 - ✦ Update Ice Machine (Code)
 - ✦ Review new Upright Dishwasher (New)

Input Consensus

Ex: 2.01 – Convection Oven

- Offerings

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

- Issues Resolved

- ❑ *Updated cost data*

- Phase 2 Activities

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

Full-Size Convection Oven



Blue text = Item not discussed in intro, not a change
Red text = Item not discussed in intro, and changed
Italics text = Item that has not been completed

Input Consensus

Ex: 2.01 – Convection Oven

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• Offerings

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

← Offering = Subset of permutations in a Measure that are defined by major characteristics of the Measure

• Issues Resolved

- ❑ *Updated cost data*

• Phase 2 Activities

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



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Input Consensus

Ex: 2.01 – Convection Oven

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● Offerings

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

● Issues Resolved

- ❑ *Updated cost data*

● Phase 2 Activities

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

Issues Resolved = List items that have been discussed and changed for this specific measure. If energy/demand savings are impacted, the direction (but not the magnitude) of change will be noted.

Blue text = Item not discussed in intro, not a change
Red text = Item not discussed in intro, and changed
Italics text = Item that has not been completed

Input Consensus

Ex: 2.01 – Convection Oven

29



- Offerings

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

- Issues Resolved

- ❑ *Updated cost data*

- Phase 2 Activities

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

Phase 2 Activities = List of items that were identified that would increase the value of the measure (ie, typically related to savings accuracy or documentation).

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Input Consensus

Ex: 2.01 – Convection Oven

30



- Offerings

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

- Issues Resolved

- ❑ *Updated cost data*

- Phase 2 Activities

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

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Italics text = Item that has not been completed

Measure Consensus

2.01 – Commercial Convection Oven

- Offerings

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

- Issues Resolved

- ❑ *Updated cost data*

- Phase 2 Activities

- ❑ 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



Blue text = Item not discussed in intro, not a change
Red text = Item not discussed in intro, and changed
Italics text = Item that has not been completed

Input Consensus

2.01 – Commercial Convection Oven

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- 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

33

Blue text = Item not discussed in intro, not a change
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Italics text = Item that has not been completed

- 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)

- Issues Resolved

- ❑ Removed Tier 1 savings threshold. Published data on shipments already shows high adoption
- ❑ 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

- Phase 2 Activities

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



Input Consensus

2.02 – Commercial Dishwasher



34

- 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

- Offerings

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

- Issues Resolved

- ❑ *Updated cost data*
- ❑ 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.

- Phase 2 Activities

- ❑ Update base and measure case inputs with 2017 QPL

Combination Oven:



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Italics text = Item that has not been completed

Input Consensus

2.03 – Commercial Combination Oven

Combination Oven:



36

- 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

37

- Offerings

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

- Issues Resolved

- ❑ *Updated cost data*
- ❑ 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/ft²) updated from 355 to 293 W/ft² that represents values from the latest QPL

- Phase 2 Activities

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

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Input Consensus

2.04 – Commercial Griddles

38



- 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

39



- Offerings

- Electric and Gas

- Issues Resolved

- *Updated cost data*
- POU savings increase based upon updated methodology (Unknown Standby Loss factor)

- Phase 2 Activities

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

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Input Consensus

2.05 – Commercial Steamers

40



- 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

- Offerings

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

- Issues Resolved

- ❑ *Updated cost data*
- ❑ SCE Cabinet Volume (ft³) and Normalized Idle Energy Rate measure case inputs updated for consistency to the average QPL values of 2014:
 - ✦ Half size – 10 ft³, 5 W/ft³
 - ✦ Full size – 25 ft³, 11.3 W/ft³

- Phase 2 Activities

- ❑ Update base and measure case inputs with 2017 QPL



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Input Consensus

2.07 – Insulated Hot Food Holding Cabinets



42

- 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

- Offerings

- ❑ Permutations vary by Capacity (Large ≥ 25 ")
- ❑ Capacity size of Small < 25 " was removed since no QPL units existed

- Issues Resolved

- ❑ *Updated cost data*

- Phase 2 Activities

- ❑ 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*

XLT X3F 3240 Conveyor Oven



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Input Consensus

2.08 – Commercial Conveyor Oven-Gas

XLT X3F 3240 Conveyor Oven



44

- 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

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



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Input Consensus

2.09 – Commercial Electric Deck Oven



46

- 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 Com-Default>2yrs Ind-Default>2yrs	No Value	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	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

2.10 – Commercial Hand Wrap Machines

47

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



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Input Consensus

2.10 – Commercial Hand Wrap Machines

48

- 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

- Issues Resolved

- *Updated cost data*
- 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

- Phase 2 Activities

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



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Input Consensus

2.11 – Commercial Fryers, Gas & Electric



50

- 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

51

- Offering
 - ❑ Permutations vary by Climate Zone, for gas only (16 CZ)
 - ✦ Electric savings do not vary with Climate Zone
- Issues Resolved
 - ❑ CDF applied to demand values – decreased PG&E savings
- Phase 2 Activities
 - ❑ Significant variation in savings can be due to hours of use dependent upon building type. Improve as data becomes available.



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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

53

- Offering

- ❑ Permutations vary by Measure Case (0.65 gpm, 1.15 gpm)
- ❑ Permutations vary by Climate Zone (16 CZ)
 - ✦ Due to ground water temperature



- Issues Resolved

- ❑ *Addressing - Hours per day updated to PG&E methodology based upon latest studies – 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

- Phase 2 Activities

- ❑ Consider a targeted DI baseline that matches code (1.6 gpm)

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Input Consensus

2.13 – Low-Flow Pre-Rinse Spray Valves



54

- 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

55

- Offering
 - ❑ Permutations vary by Size (Single, Double)
- Issues Resolved
 - ❑ None.
- Phase 2 Activities
 - ❑ 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



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Input Consensus

2.14 – Commercial Rack Oven-Gas

56



- Measure Permutations

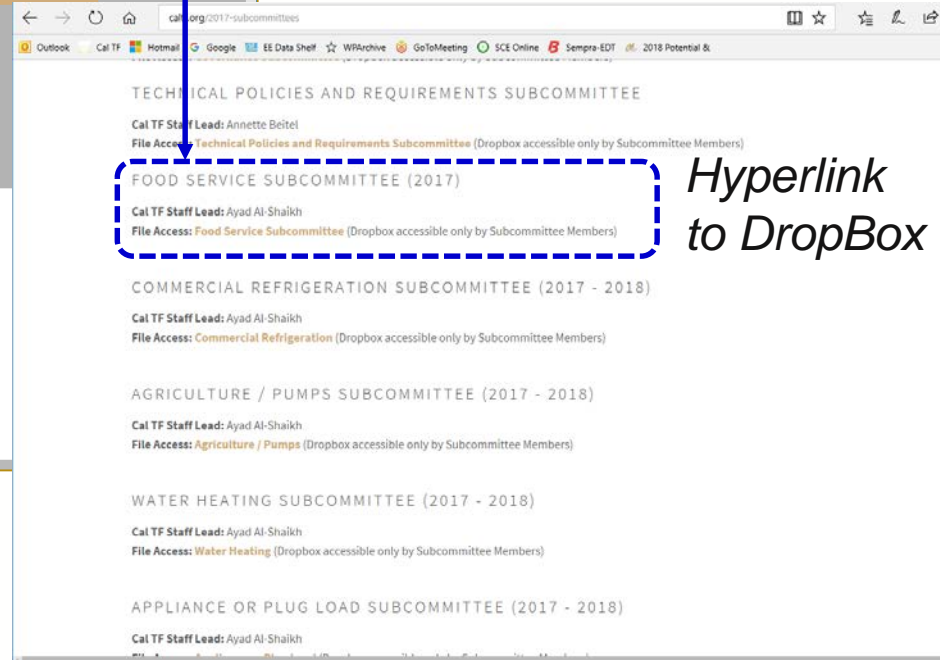
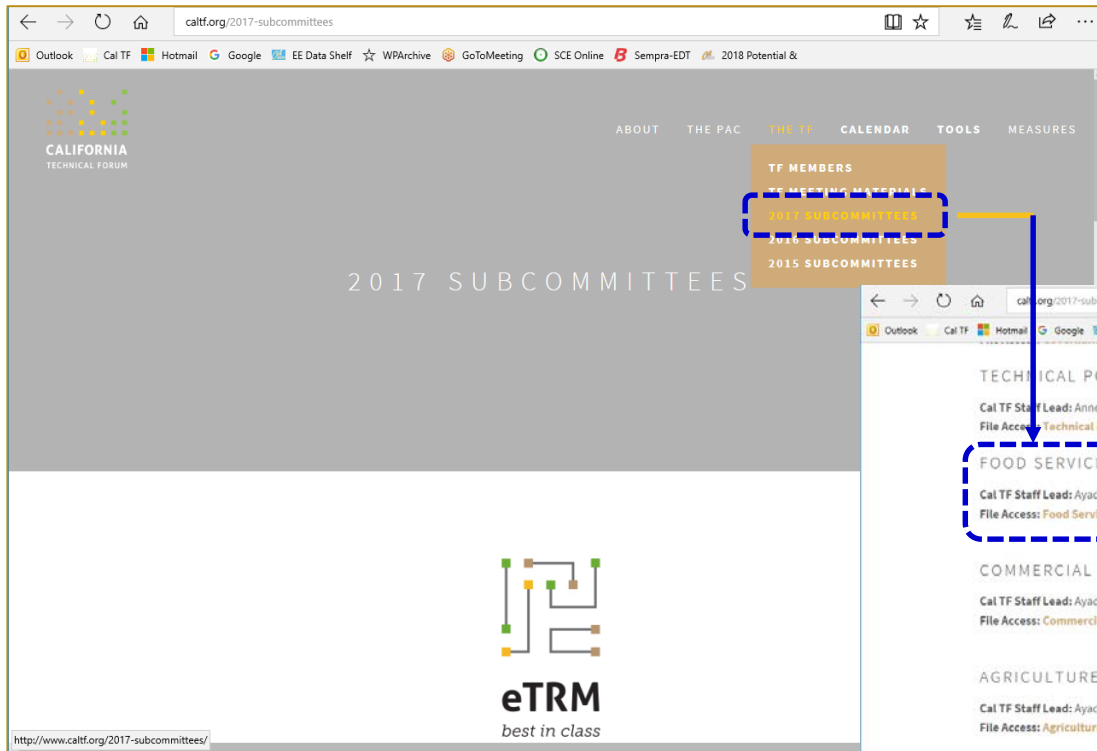
	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Any	Com	No Value	Com	Any
BldgVintage	Any	Any	No Value	Ex	Any
BldgLoc	Any	Any	No Value	IOU	Any
BldgHVAC	Any	cWtd	No Value	Any	Any

- 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				
	Ind-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

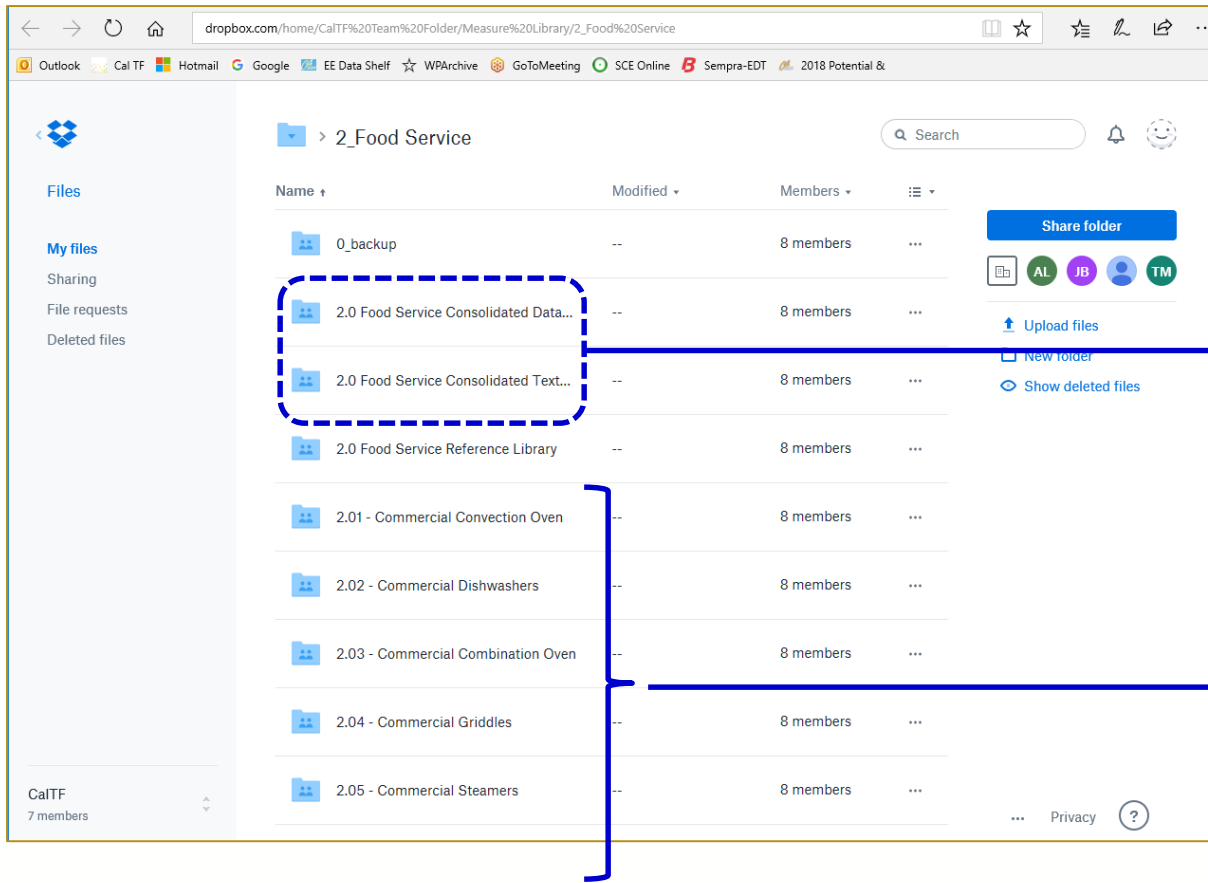
Accessing DropBox

57



Accessing DropBox

58



*Consolidated
Text and Data
Files*

*Measure Folders
(ie, workpaper
storage)*