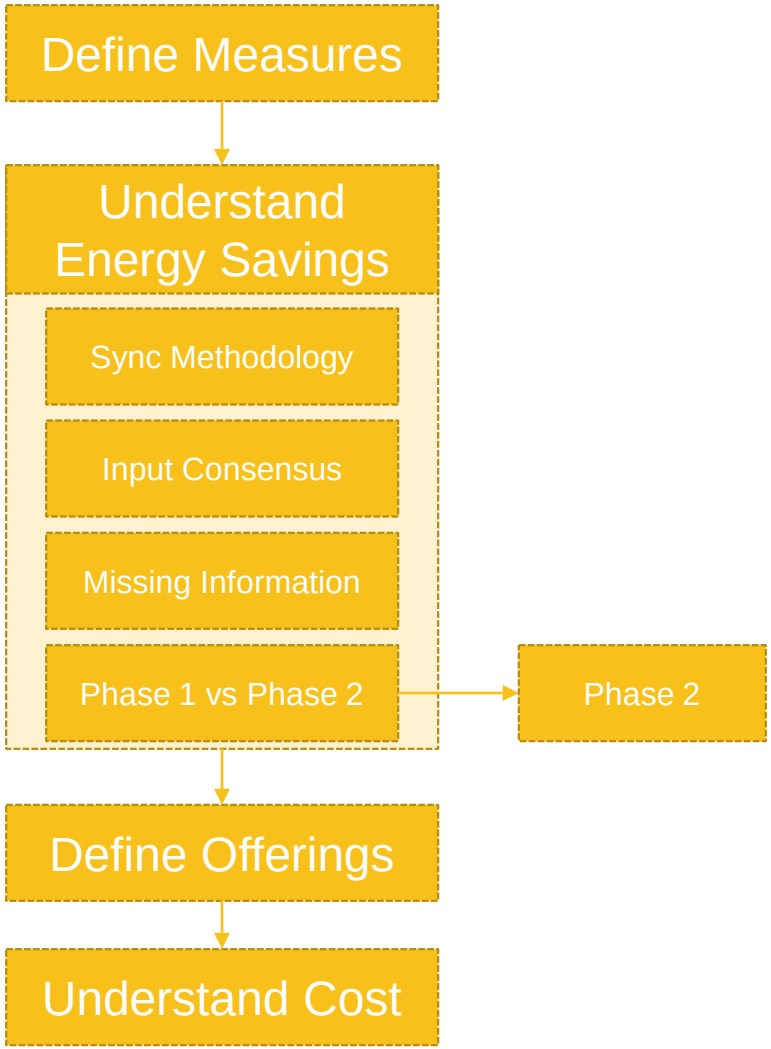
Commercial Refrigeration Measure Consolidation

CALIFORNIA
TECHNICAL FORUM

AYAD AL-SHAIKH

SEPTEMBER 2017

Commercial Refrigeration Consolidation Overview



- At the start,
  - Measures ~85% modeled in DOE2.2r
- Defining Measures
  - EC Motors
  - Refrigeration Controls
  - Display Cases
- Input consensus achieved
  - Permutation / Implementation fields
  - Offerings
  - Cost
- Missing information:
  - Building vintage savings permutations
  - Single Compressor FHP savings
  - DOE Rulemaking for Display Case baseline
  - Solid documentation on Grocery prototype
- Phase 2
  - Walk-in EC Motor per Rated-HP
  - Align Grocery prototype(s) model with market

Define Measures
Original Measure List

No.	Measure Names	Plan	PG&E	SCE	SDG&E	SCG	POU
1.01	Anti-Sweat Heater (ASH) Controls	2017					
1.02	Anti-Sweat Heater Display Doors	2017					
1.03	Evaporator Fan Motors	2017					
1.04	Refrigerated Storage Auto Closer	2017					
1.05	Walk-in Cooler Evaporative Fan Cycling and VFD Control	2017					
1.06	Refrigeration Head Pressure Controls	2017					
1.07	Refrigeration Night Covers	2017					
1.08	Bare Refrigeration Line Insulation	2017					
1.09	Add Doors to Walk-in Cooler	2018					
1.10	Compressor Retrofit: Multiplex	2018					
1.11	Display Case ECM Motor Retrofit	2018					
1.12	Efficient Condenser: Air-Cooled to Evap	2018					
1.13	Efficient Condenser: Multiplex	2018					
1.14	Floating Head Pressure - Single Compressors	2017					
1.15	Low Temp Coffin to Reach-In	2018					
1.16	Medium Temp Open Case Retrofit	2018					
1.17	Display Cases with Doors	2017					
1.18	Add Med Temp Case Doors	2017					
1.19	Adaptive Refrigerator and Freezer Controls Comm	2017					
1.20	Strip curtain infiltration barrier for refrigerated space	n/a	Sunset				

Lead Workpaper
Supporting Workpaper

Define Measures
Final Measure List

EC Motors
Refrig Controls
Display Cases

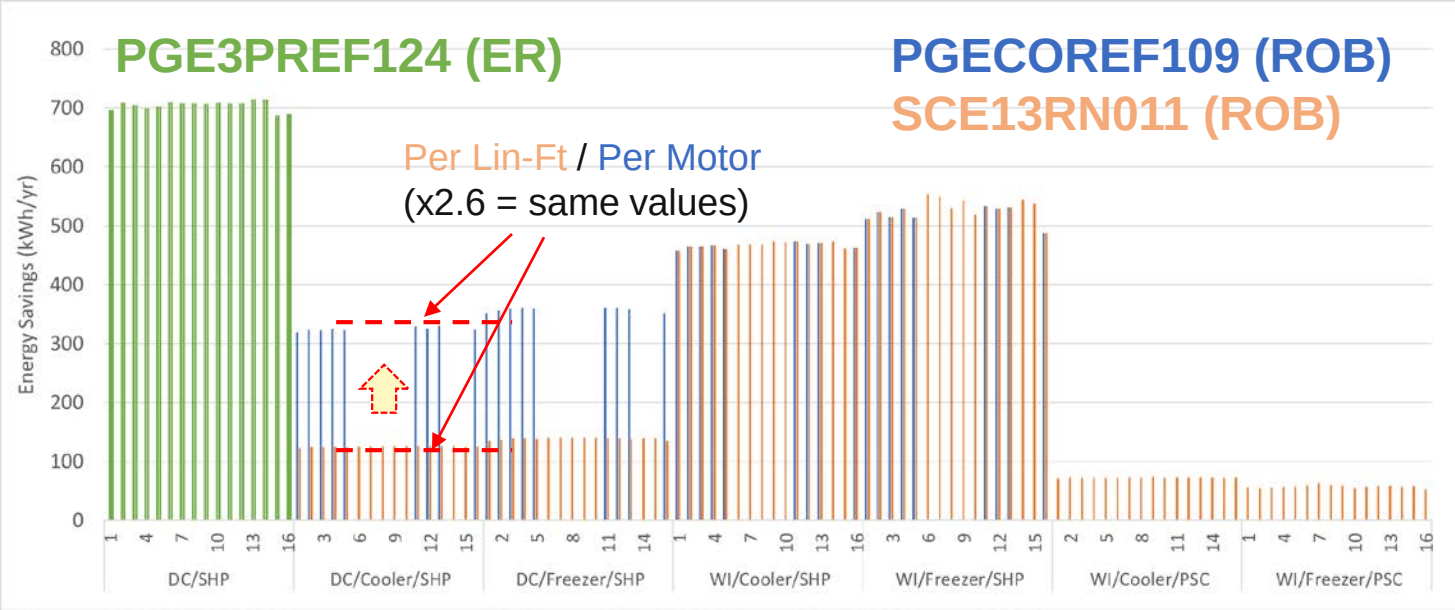
No.	Measure Names	Plan	PG&E	SCE	SDG&E	SCG	POU
1.01	Anti-Sweat Heater (ASH) Controls	2017					
1.02a	Replace Anti-Sweat Heater Display Case	2017	Overlap with 1.17a				
1.02b	Replace Anti-Sweat Heater Display Doors	2017					
1.03a	Display Case EC Motor Retrofit	2017					
1.03b	Walk-In EC Motor Retrofit	2017					
1.04	Refrigerated Storage Auto Closer	2017					
1.05	Walk-in Cooler/Freezer & Refrig Storage Evap Control	2017					
1.06a	Floating Head Pressure Controls - Multiplex Systems	2017					
1.06b	Suction Controls - Multiplex Systems	2017					
1.07	Refrigeration Night Covers	2017					
1.08	Bare Refrigeration Line Insulation	2017					
1.09	Add Doors to Walk-in Cooler	2017					
1.10	Compressor Retrofit: Multiplex	2017					
1.11	Display Case ECM Motor Retrofit	n/a	Consolidate with 1.03a				
1.12	Efficient Condenser: Air-Cooled to Evap	Hold	Hold - Sunset				
1.13	Efficient Condenser: Multiplex	Hold	Hold - Sunset				
1.14	Floating Head Pressure Controls - Single Compressors	2017					
1.15	Low Temp Coffin to Reach-In	Hold	Hold - Baseline Change				
1.16	Medium Temp Open Case Retrofit	n/a	Overlap with 1.17a				
1.17a	Display Case Replacement - Like for Like	2017					
1.17b	Display Case Replacement - Open to Closed	Hold	Hold - Baseline Change				
1.18	Add Medium Temp Case Doors	2017					
1.19	Adaptive Refrigerator and Freezer Controls	2017					
1.20	Strip curtain infiltration barrier for refrigerated space	n/a	Hold - Sunset				
1.21	Ultra Low Temperature Freezer	Hold	New Workpaper				
1.22	Commercial Reach-In Refrigerators and Freezers	Moved					

Blue text = Changed item

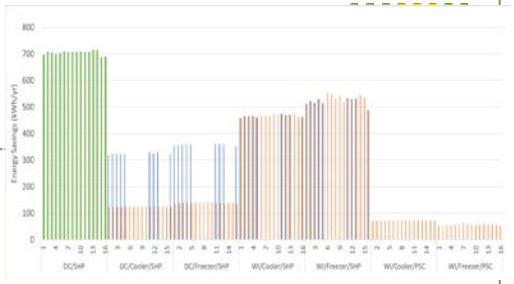
1.03a & 1.03b, EC Motor Retrofits Restructuring Consensus

- Phase 1
  - Savings values do not change
  - Create 2 Measures for:
    - Display Case EC Motor Retrofit
    - Walk-In EC Motor Retrofit
- Phase 2:
  - Norm Unit = Rated-HP
  - For Walk-ins only

- Phase 1 Approach
  - Use ROB methodology from **PGECOREF109 & SCE13RN011**
    - *For **both** Display Cases and Walk-Ins*
    - DEER values
    - Norm Unit = Per Motor (each)
  - Add ER/(Accelerated Replacement) methodology from **PGE3PREF124**
    - *For Display Cases only*



1.03a, Display Case EC Motor Retrofits
1.03b, Walk-In EC Motor Retrofits



- Phase 1
  - No Permutation Collapse due to MT (Cooler) / LT (Freezer)
    - *Will document methodology for when it is recommended to create a standard process*
  - Permutation Collapse due to Climate Zone
    - 1-3% for SHP baseline motors – use simple average
    - Note that PSC motor baseline is not being used currently
  - Notes for implementation of Collapse:
    - Discrete savings would be maintained for each Climate Zone within the eTRM
    - Savings would be averaged over the Climate Zones based upon:
      - Simple average
      - ~~Weighted average based upon~~ *(market data not available)*
        - ~~2016 claims data, -or-~~
        - ~~Number of business by CZ (grocery, retail)~~

Refrigeration Controls Restructuring Consensus

- Process Controls
  - Remove process refrigeration controls measures and reconsider these for the Process Category
- Measure Break-Up
  - Create separate measures for:
    - Floating Head Pressure (FHP) Control, Multiplex Systems
    - Suction Control, Multiplex Systems
    - Floating Head Pressure (FHP) Control, Single Compressor Systems
- Impact due to Climate Zone is significant
  - Keep CZ as a permutation variable (16 Climate Zones)
  - Savings vary by 26-50% for kWh and 20-30% for therms
- Impact due to Building Vintage is significant
  - Capture savings more accurately using Vintage as a proxy for the other sensitive variables (5 Vintages)
- Impacts due to Condenser Type and Control Strategy are significant
  - Use distinction of condenser type for FHP Multiplex System measure. (air / evap)
  - Use distinction of control strategy for FHP Multiplex System measure. (2 controls)
    - Control SCT to ambient +12ºF TD, 70ºF min, backflood setpoint of 68ºF
    - Control SCT to ambient +12ºF TD, 70ºF min, backflood setpoint of 68ºF, variable-speed

Refrigeration Controls
Example: Variation Due to Vintages

Raw Values – **FHP**
Air Cooled, No VFD

BldgLoc	BldgType	BldgVint	kWh
CZ01	Gro	1975	1,818
		1985	1,836
		1996	1,502
		2003	1,039
		2007	557

Average of Vintages

BldgLoc	BldgType	kWh
CZ01	Gro	1,350

Standard Deviation of Vintages

BldgLoc	BldgType	kWh
CZ01	Gro	548

% Difference Due to Standard Deviation of Vintages

= 548 / 1,350 = 41%

BldgLoc	BldgType	kWh
CZ01	Gro	41%

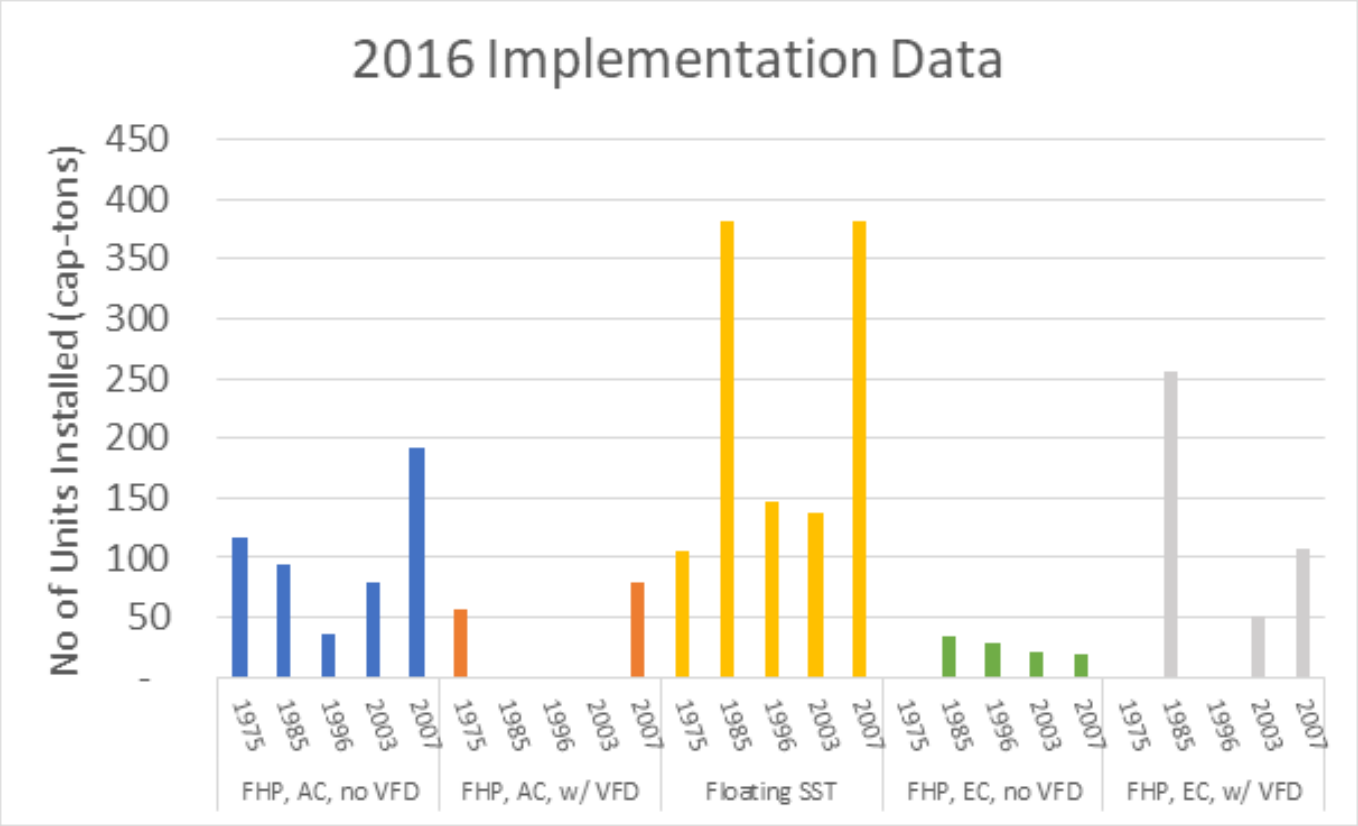
BldgLoc	BldgType	kWh
CZ01	Gro	41%
CZ02	Gro	40%
CZ03	Gro	45%
CZ04	Gro	41%
CZ05	Gro	43%
CZ06	Gro	
CZ08	Gro	
CZ09	Gro	
CZ10	Gro	
CZ11	Gro	36%
CZ12	Gro	40%
CZ13	Gro	36%
CZ14	Gro	
CZ15	Gro	
CZ16	Gro	37%

Average Difference Across Climate Zones

	PGE		PGE-vfd	
	kWh	therms	kWh	therms
AC, Multiplex	40%	21%	12%	20%
EC, Multiplex	54%	23%	47%	22%
Floating SST	28%	11%		

Refrigeration Controls - Vintage

- Impact due to Building Vintage is significant.
  - Claims for Floating Head Pressure about equal to Floating Suction Control

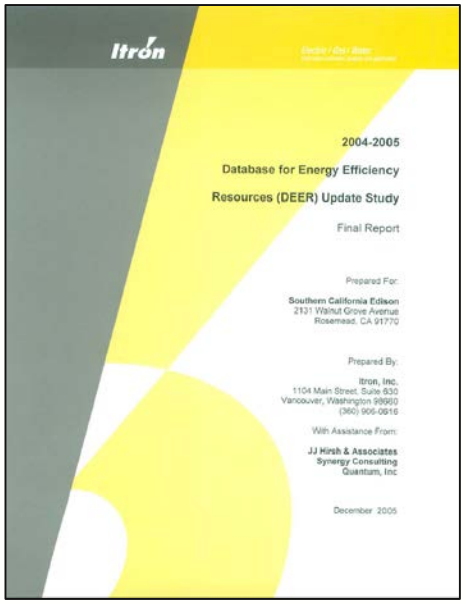


Refrigeration Controls

BldgLoc	BldgType	BldgVint	kWh
CZ01	Gro	1975	1,818
		1985	1,836
		1996	1,502
		2003	1,039
		2007	557

- Vintage documentation:
  - (Checked .inp files from FHP prototype models - consistent)

Air-Cooled Condensers, separate condensers serving LT & MT refrigeration systems			
Vintage	Size, kBtu @ TD; SCT control		Efficiency, Btu/Watt @ TD; Cap control
	Low temperature	Medium Temperature	
<1978	464 kBtu @15TD, 90 setpoint	782 kBtu @20TD, 90 setpoint	45 Btu/W @ 10FTD, 4 cycling fans (each cond)
<1992	464 kBtu @15TD, 90 setpoint	782 kBtu @20TD, 90 setpoint	45 Btu/W @ 10FTD, 4 cycling fans
<2001	464 kBtu @10TD, 90 setpoint	782 kBtu @15TD, 90 setpoint	53 Btu/W @ 10FTD, 4 cycling fans
>2000	464 kBtu @10TD, 85 setpoint	782 kBtu @15TD, 85 setpoint	53 Btu/W @ 10FTD, 4 cycling fans
Current "T24" equivalent	464 kBtu @10TD, 80 setpoint	782 kBtu @15TD, 80 setpoint	53 Btu/W @ 10FTD, 4 cycling fans
EEM - Energy Efficient	464 kBtu @10TD, control varies	782 kBtu @15TD, control varies	85 Btu/W @ 10FTD, 4 fans, cycleor VFD
Note 1: Condenser is sized for the heat rejection indicated, at the sizing TD indicated. The condenser efficiency is based on the same condenser selection as the size, but the "Btu" in the "Btu/Watt" term is based on the heat-rejection capacity when a 10°F TD exists.			


Itron

2004-2005

Database for Energy Efficiency

Resources (DEER) Update Study

Final Report

Prepared For:

Southern California Edison
2131 Walnut Grove Avenue
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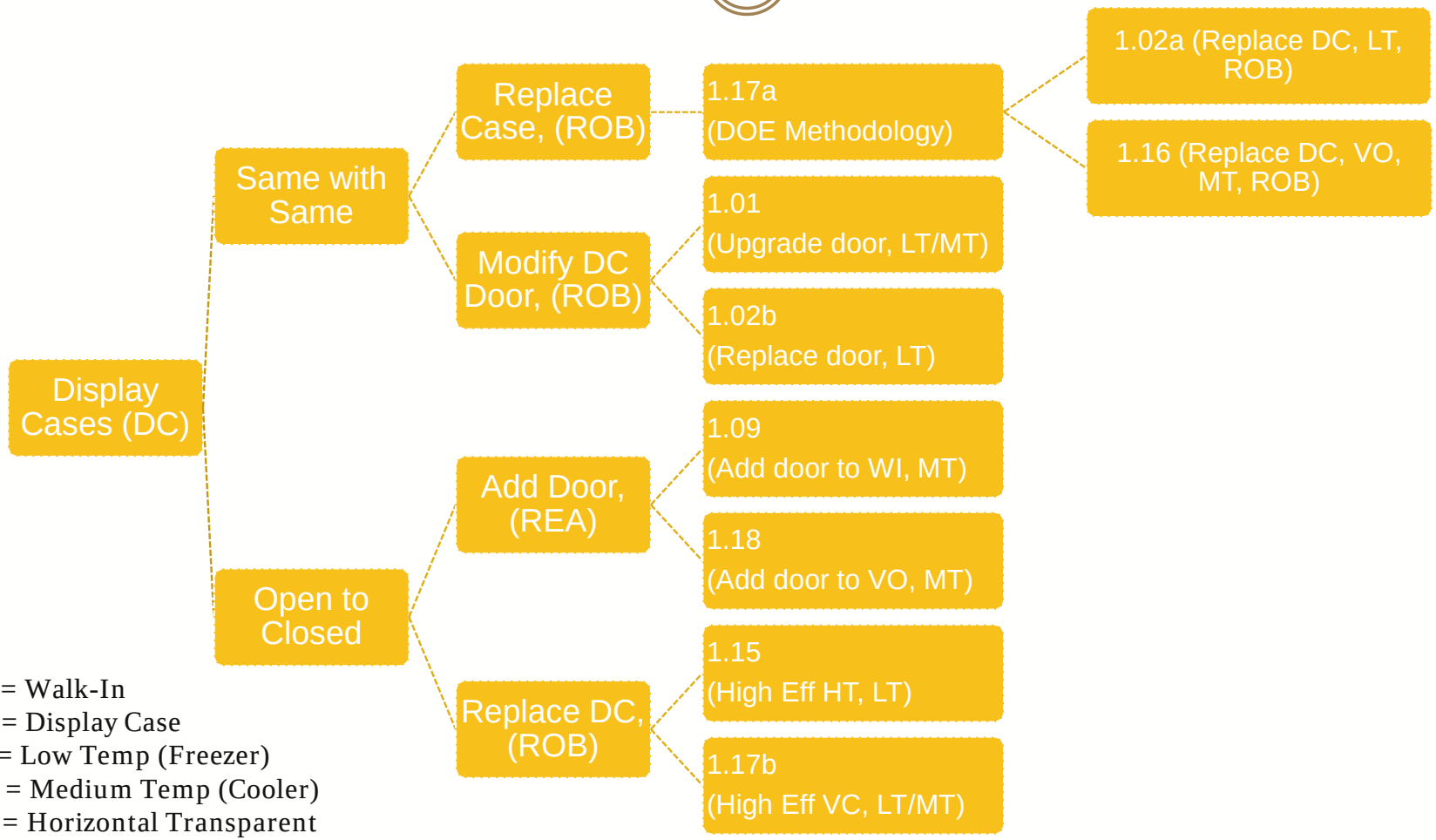
With Assistance From:

JJ Hirsh & Associates
Synergy Consulting
Quantum, Inc

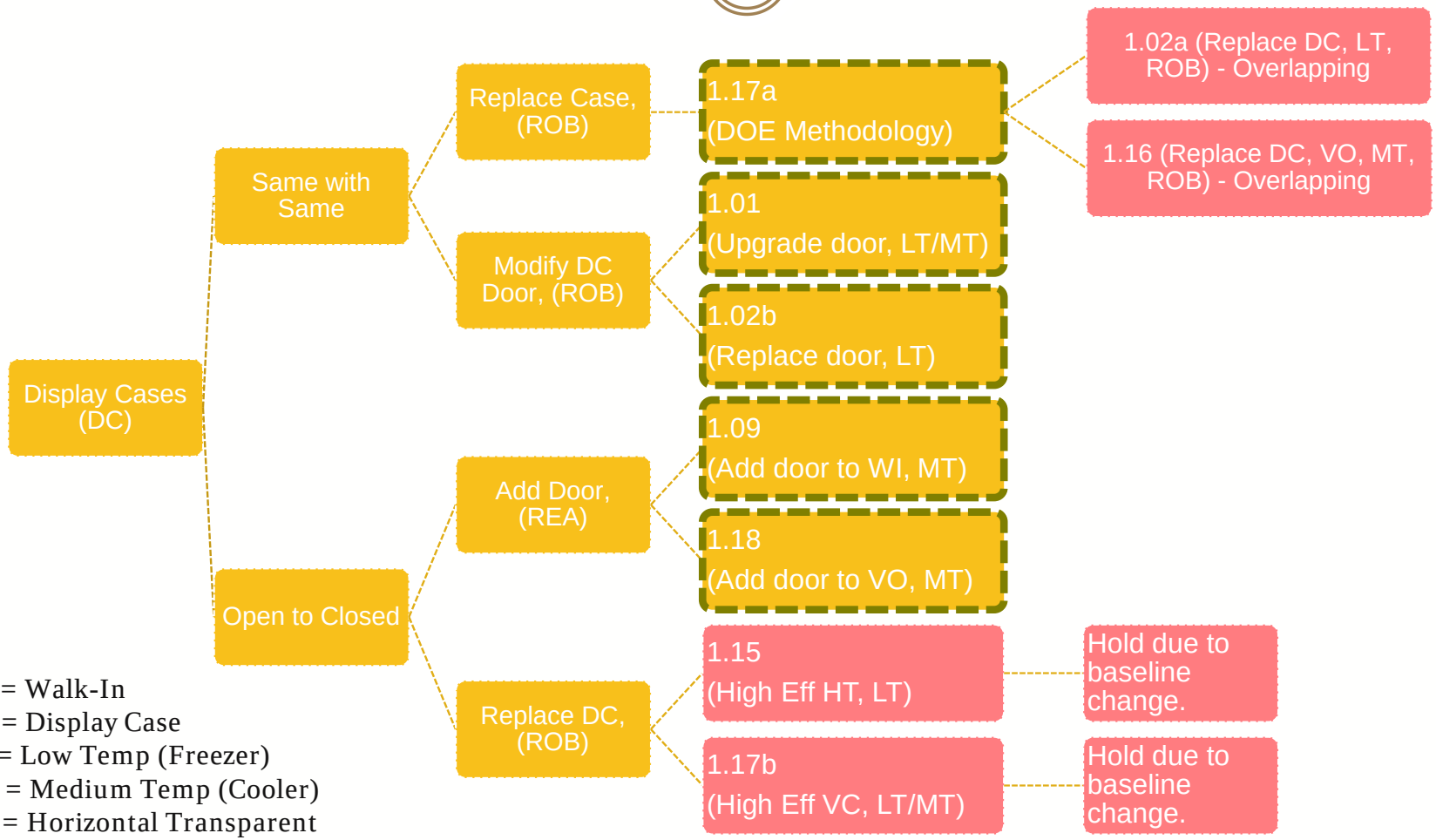
December 2005

Display Case Tree



WI = Walk-In
DC = Display Case
LT = Low Temp (Freezer)
MT = Medium Temp (Cooler)
HT = Horizontal Transparent
VO/C = Vertical Open or Vertical Closed
Red Boxes = Overlapping measures to be removed

Display Case Tree



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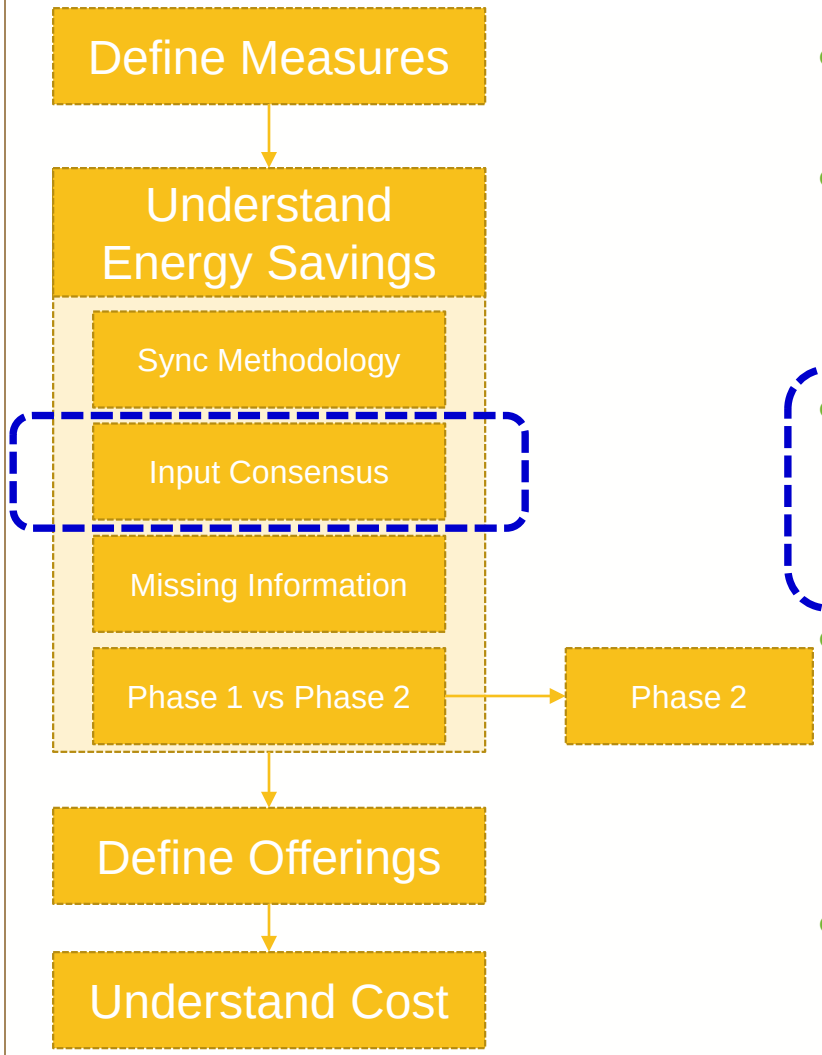
Consolidate in 2017

Commercial Refrigeration Consolidation Overview



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Input Consensus
Ex: 1.01 – Anti-Sweat Heater (ASH) Control

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	Asm,Gro,RFF,RSD,Rt3,RtL,RtS	Asm,Com	No Value
BldgVintage	Ex	Ex	Any	Ex	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10,CZ14,CZ15	No Value
BldgHVAC	cWtd	Wtd	Any	Any	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROB	REA	REA,RET	No Value
NormUnit	Len-ft	Len-ft	Len-ft	Len-ft	No Value
EUL ID	GrocDisp-ASH	GrocDisp-ASH	GrocDisp-ASH	GrocDisp-ASH	No Value
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value
DeliveryType	DirInstall PreRebDown	Any	DirInstall PreRebDown	DirInstall PreRebDown	No Value
GSIA	Def-GSIA	HB31	Def-GSIA	Def-GSIA	No Value

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

Input Consensus
Ex: 1.01 – Anti-Sweat Heater (ASH) Control

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	Asm,Gro,RFF,RSD,Rt3,RtL,RtS	Asm,Com	No Value
BldgVintage	Ex	Ex	Any	Ex	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10,CZ14,CZ15	No Value
BldgHVAC	cWtd	Wtd	Any	Any	No Value

Com – Implies that a weighted average of the savings from any commercial building type can be used. Savings from this category are predominantly claimed through grocery store installations, so it is appropriate that this building prototype has been used to establish savings. However, several other (non-grocery) building types do produce legitimate savings claims.

NOTE – The specific Building Type should be submitted with a claim but it would not be rejected even with a simple COM building type.

NOTE – This code implies that non-commercial (ie, Res, Ind, and Ag) building types should not use this measure since savings would not longer be representative.

Input Consensus
Ex: 1.01 – Anti-Sweat Heater (ASH) Control

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	Asm,Gro,RFF,RSD,Rt3,RtL,RtS	Asm,Com	No Value
BldgVintage	Ex	Ex	Any	Ex	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10,CZ14,CZ15	No Value
BldgHVAC	cWtd	Wtd	Any	Any	No Value

Ex – Implies that the installation should be within an existing building. New construction is not allowed since additional baseline requirements could exist.

Input Consensus
Ex: 1.01 – Anti-Sweat Heater (ASH) Control

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	Asm,Gro,RFF,RSD,Rt3,RtL,RtS	Asm,Com	No Value
BldgVintage	Ex	Ex	Any	Ex	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10,CZ14,CZ15	No Value
BldgHVAC	cWtd	Wtd	Any	Any	No Value

CZ01 through CZ016 – Implies that permutations vary according to Climate Zone. Typically, all climate zones would be available when this is the case.

Input Consensus
Ex: 1.01 – Anti-Sweat Heater (ASH) Control

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	Asm,Gro,RFF,RSD,Rt3,RtL,RtS	Asm,Com	No Value
BldgVintage	Ex	Ex	Any	Ex	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10,CZ14,CZ15	No Value
BldgHVAC	cWtd	Wtd	Any	Any	No Value

cWtd – Implies that the Building HVAC type is a weighted average across all commercial building types. In these cases, interactive effects have been included, as opposed to the use of "Any" when the Building HVAC type does not impact interactive effects.

NOTE – Commercial Refrigeration measures that have been modelled will typically use this code.

Input Consensus
Ex: 1.01 – Anti-Sweat Heater (ASH) Control

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROB	REA	REA,RET	No Value
NormUnit	Len-ft	Len-ft	Len-ft	Len-ft	No Value
EUL ID	GrocDisp-ASH	GrocDisp-ASH	GrocDisp-ASH	GrocDisp-ASH	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value
DeliveryType	DirInstall PreRebDown	Any	DirInstall PreRebDown	DirInstall PreRebDown	No Value
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value

Savings / Life Interaction:

Installation Type	Savings		Life	
	1st Baseline (BL)	2nd BL	1st BL	2nd BL
Replace on Burnout (ROB)	Above Code or Standard	N/A	EUL	N/A
New Construction (NEW/NC)	Above Code or Standard	N/A	EUL	N/A
Retrofit or Early Replacement (ER)	Above Customer Existing	Above Code or Standard	RUL	EUL-RUL
Retrofit Add-on (REA)	Above Customer Existing	N/A	EUL*	N/A

* EUL for **REA** measure is the minimum of: EUL of measure equipment or 1/3 EUL of host equipment.

Input Consensus
Ex: 1.01 – Anti-Sweat Heater (ASH) Control

- Measure Implementation

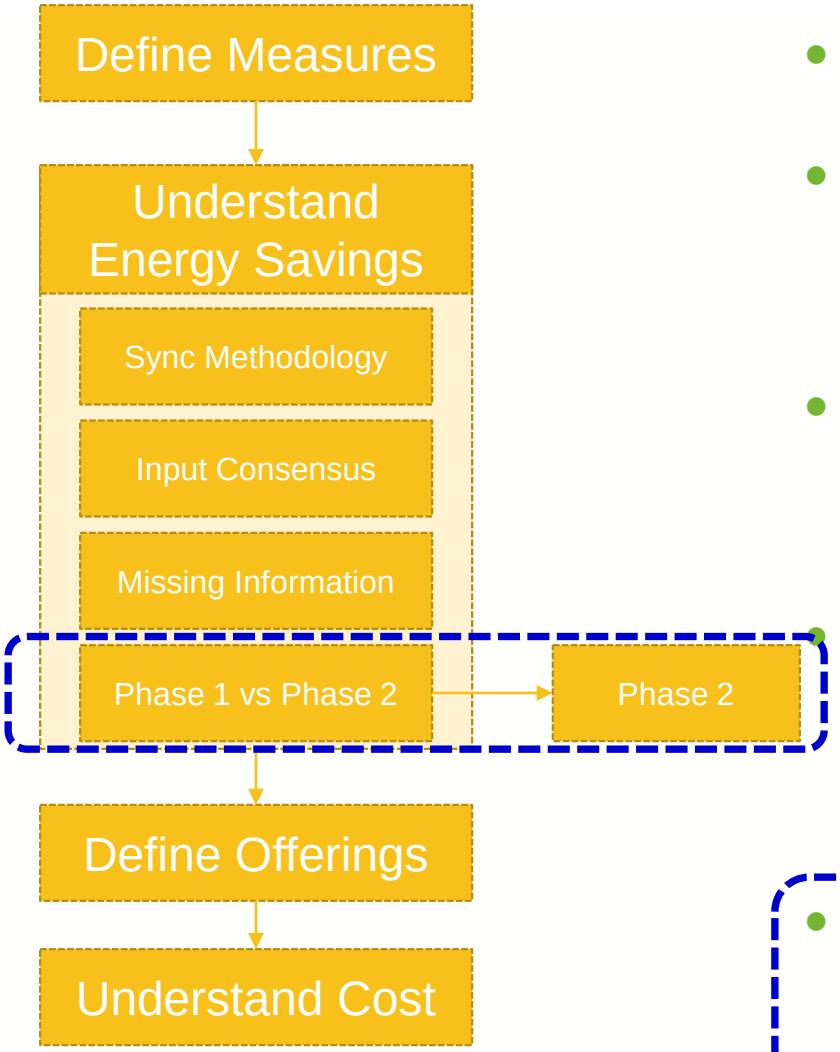
	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROB	REA	REA,RET	No Value
NormUnit	Len-ft	Len-ft	Len-ft	Len-ft	No Value
EUL ID	GrocDisp-ASH	GrocDisp-ASH	GrocDisp-ASH	GrocDisp-ASH	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value
DeliveryType	DirInstall PreRebDown	Any	DirInstall PreRebDown	DirInstall PreRebDown	No Value
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value

Cost Interaction:

Installation Type	Incremental Measure Cost	Full Measure Cost	
		1st Baseline	2nd Baseline
ROB, NEW/NC	(MEC + MLC) – (BEC + BLC)	(MEC + MLC) – (BEC + BLC)	N/A
ER	(MEC + MLC) – (BEC + BLC)	MEC + MLC	(MEC + MLC) – (BEC + BLC)
REA	MEC + MLC	MEC + MLC	N/A

MEC – Measure equipment cost
MLC – Measure labor cost
BEC – Baseline equipment cost
BLC – Baseline labor cost

Commercial Refrigeration Consolidation Overview



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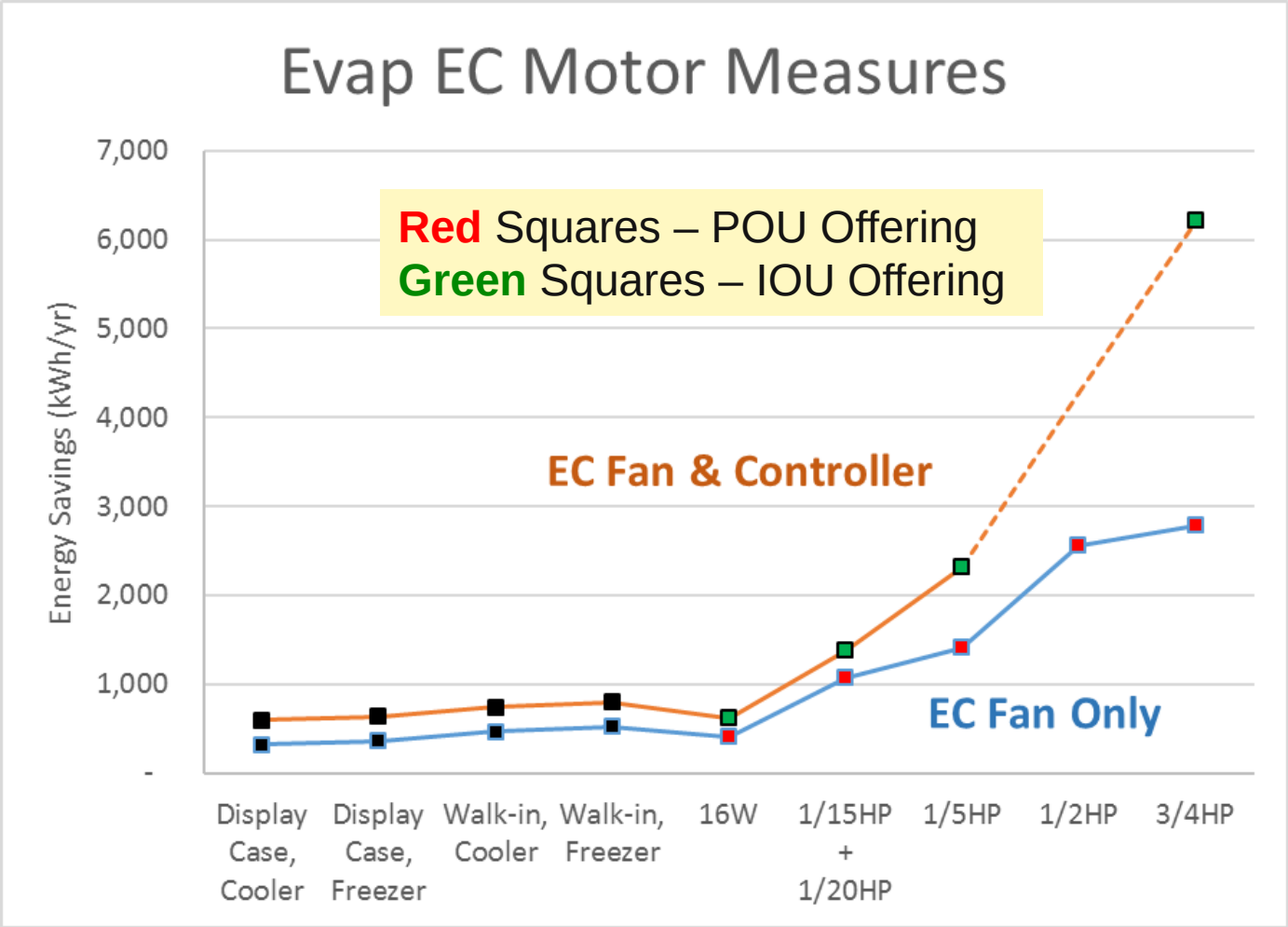
Phase 2 - Walk-in EC Motor per Rated-HP



Measure Consensus
1.01 – Add Anti-Sweat Heater (ASH) Controls

- Offerings
  - Low Temp (Freezer) and Medium Temp (Cooler)
  - Permutations vary by Climate Zone
- Issues Resolved
  - Multiple cost methodologies; SCE/NEEP approach uses the best available data.
- Phase 2 Activities
  - None

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
1.01 – Anti-Sweat Heater (ASH) Control

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	Asm,Gro,RFF,RSD,Rt3,RtL,RtS	Asm,Com	No Value
BldgVintage	Ex	Ex	Any	Ex	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10,CZ14,CZ15	No Value
BldgHVAC	cWtd	Wtd	Any	Any	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROB	REA	REA,RET	No Value
NormUnit	Len-ft	Len-ft	Len-ft	Len-ft	No Value
EUL ID	GrocDisp-ASH	GrocDisp-ASH	GrocDisp-ASH	GrocDisp-ASH	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value
DeliveryType	DirInstall PreRebDown	Any	DirInstall PreRebDown	DirInstall PreRebDown	No Value
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value

Measure Consensus
1.02b – Replace Anti-Sweat Heater Display Doors

- Offerings
  - Low Temp (Freezer) only
  - Permutations vary by Climate Zone
- Issues Resolved
  - Removed overlapping measure to replace Display Case
- Phase 2 Activities
  - Update cost documentation

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

Input Consensus
1.02b – Replace Anti-Sweat Heater Display Doors

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Asm,Gro,RSD,Rt3,RtL,RtS	Asm,Gro,RFF,Rt3,RtL,RtS	No Value	No Value
BldgVintage	Ex	Ex	Any	No Value	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	No Value	No Value
BldgHVAC	cWtd	cWtd	Any	No Value	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROB	ER,ROBNC	No Value	No Value
NormUnit	Len-Ft	Len-ft	Len-ft Each	No Value	No Value
EUL ID	GrocDisp-ZeroHtDrs	GrocDisp-ZeroHtDrs	GrocDisp-ZeroHtDrs	No Value	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value	No Value
DeliveryType	PreRebDown	PreRebDown	PreRebDown	No Value	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	No Value	No Value

Measure Consensus
1.03a – Display Case EC Motor Retrofit

- Offerings
  - Display Case only
  - Permutations vary by Cooler / Freezer
- Issues Resolved
  - Do not collapse Cooler / Freezer permutations for ROB measures
  - Collapse Vintage permutations for ER measure to make consistent (<1%)
  - Collapse Climate Zone permutations for all measures (<3%)
  - POU/TRM savings reflected in ER measure
- Phase 2 Activities
  - None

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Input Consensus
1.03a – Display Case EC Motor Retrofit

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	Asm,Gro,RFF,RSD,Rt3, RtL,RtS	No Value	No Value
BldgVintage	Ex	Ex	Any	No Value	No Value
BldgLoc	IOU	CZ01,CZ02,CZ03,CZ04, CZ05,CZ11,CZ12,CZ13, CZ16	CZ06,CZ08,CZ09,CZ10, CZ13,CZ14,CZ15,CZ16	No Value	No Value
BldgHVAC	cWtd	cDXGF	Any	No Value	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROB ER	ROB	ER	No Value	No Value
NormUnit	Each	Each	Len-ft	No Value	No Value
EUL ID	GrocDisp-FEvapFanMtr	GrocWlkIn-WEvapFanMtr	GrocDisp-FEvapFanMtr	No Value	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value	No Value
DeliveryType	DirInstall PreRebDown	Any	DirInstall PreRebDown	No Value	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	No Value	No Value

Measure Consensus
1.03b – Walk-Ins EC Motor Retrofit

- Offerings
  - Walk-Ins only
  - Permutations vary by Cooler / Freezer
- Issues Resolved
  - Do not collapse Cooler / Freezer permutations
  - Collapse Climate Zone permutations
  - *Preserve POU/TRM methodology (for POU use only)*
    - *Better reflects the actual savings*
- Phase 2 Activities
  - Change Normal Unit to “Rated-HP” from “Each”
    - IOUs move to POU methodology

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Input Consensus
1.03b – Walk-Ins EC Motor Retrofit

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	Asm,Gro,RFF,RSD,Rt3, RtL,RtS	No Value	No Value
BldgVintage	Ex	Ex	Any	No Value	No Value
BldgLoc	IOU	CZ01,CZ02,CZ03,CZ04, CZ05,CZ11,CZ12,CZ13, CZ16	CZ06,CZ08,CZ09,CZ10, CZ13,CZ14,CZ15,CZ16	No Value	No Value
BldgHVAC	cWtd	cDXGF	Any	No Value	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROB	ROB	ER	No Value	No Value
NormUnit	Each	Each	Len-ft	No Value	No Value
EUL ID	GrocWlkIn-WEvapFanMtr	GrocWlkIn-WEvapFanMtr	GrocDisp-FEvapFanMtr	No Value	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value	No Value
DeliveryType	DirInstall PreRebDown	Any	DirInstall PreRebDown	No Value	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	No Value	No Value

Measure Consensus
1.04 – Refrigerated Storage Auto Closer

- Offerings
  - Permutations vary by Cooler / Freezer
  - Permutations vary by Climate Zone
- Issues Resolved
  - *Cost aligned to WO017 value (3x greater than DEER value)*
    - *Dependent upon door typical size*

Measure Description	Cost Unit	N	Cost Estimate	DEER 2008	DEER 2005	DEER 2001
Auto-closers on main cooler/freezer doors, <42" wide	Per cooler door	1	$155.67	$120.00	$322.59	N/A
Auto-closers on main cooler/freezer doors, >42" wide	Per cooler door	1	$917.19	$120.00	$322.59	N/A

    - *Changed from average to weighted average approach*
  - Increase POU/TRM savings / decreases EUL
    - Currently using older savings methodology
- Phase 2 Activities
  - None

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Input Consensus
1.04 – Refrigerated Storage Auto Closer

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Any	ECC,EPr,EUn,Gro,Hsp,Htl,Nrs,OfL,RFF,RSD,R	Com,Gro,SCn,WRf	No Value
BldgVintage	Ex	Ex	Any	Ex	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10,CZ14,CZ15	No Value
BldgHVAC	cWtd	Wtd	Any	Any	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROB	REA	RET	No Value
NormUnit	Each	Each	Each	Len-ft	No Value
EUL ID	GrocWlkIn-DrClsr	GrocWlkIn-DrClsr	GrocWlkIn-DrClsr	GrocWlkIn-DrClsr	No Value
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs Agric-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	No Value
DeliveryType	DirInstall PreRebDown	Any	DirInstall PreRebDown	DirInstall PreRebDown	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	Def-GSIA	No Value

Measure Consensus: 1.05 – Walk-in Cooler/Freezer & Refrigerated Storage Evaporative Control

- Offerings
  - Permutations vary by Control (Fan Cycling / VFD)
  - Permutations vary by Climate Zone
- Issues Resolved
  - Cost aligned to WO017 value (3x greater than DEER value)
    - Increased costs for SCE and SDG&E; (PG&E is currently using this)
  - *Preserve POU/TRM methodology*
    - *Better reflects the actual savings*
- Phase 2 Activities
  - Change Norm-Unit to “Rated-HP” from “Each”
  - Update cost methodology

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Input Consensus, 1.05 – Walk-in Cooler/Freezer & Refrigerated Storage Evaporative Control

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Gro,RFF,RSD,RtL	Gro,RFF,RSD,RtS	Gro,RFF,RSD,Rt3	No Value
BldgVintage	Ex	Ex	Any	Ex	No Value
BldgLoc	IOU	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10,CZ14,CZ15	No Value
BldgHVAC	cWtd	Wtd	Any	Any	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROB	REA	REA,RET	No Value
NormUnit	Each	Each	Each	Cap-Tons	No Value
EUL ID	GrocWlkIn-WEvapFMtrCtrl	GrocWlkIn-WEvapFMtrCtrl	GrocWlkIn-WEvapFMtrCtrl	GrocWlkIn-WEvapFMtrCtrl	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value
DeliveryType	DirInstall PreRebDown	Any	NonUpStrm PreRebDown	PreRebDown	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	Def-GSIA	No Value

Measure Consensus
1.06a – FHP Controls - Multiplex Systems

- Offerings
  - Permutations vary by Climate Zone (16 CZ)
  - Permutations vary by Vintage (5 Vintages)
  - Permutations vary by Condenser (AC/EC) / Control (Fan Cycle/VFD)
- Issues Resolved
  - Moved Process FHP to Process Category for review
  - *Vintage permutations run through MASControl for additional Climate Zones*
  - Vintage governed by sensitive parameters:
    - Saturated Condensing Temperature SP (SCT) & Condenser Efficiency
  - *Cost updated to WO017 value (greater than DEER value)*
    - *Dependent upon "$ per discharge group" but convert to "$ per ton"*
    - *Changing to weighted average of ton / discharge group*
- Measure Extension
  - Added measure for POUs
- Phase 2 Activities
  - Potentially include Vintage

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Input Consensus

1.06a – Floating Head Pressure Controls - Multiplex Systems

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Gro	ECC,EUn,Hsp,Htl,MBT,MLI,Nrs,RFF,RSD,Rt3,RtL,RtS,SCn,WRf,OfS	No Value	Cnc,Com,Hsp,Htl,MBT,MLI,Nrs,RFF,RSD,Rt3,RtL,RtS,SCn
BldgVintage	1975,1985,1996,2003,2007	1975,1985,1996,2003,2007	Any	No Value	Any
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	No Value	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16
BldgHVAC	cWtd	cWtd	Any	No Value	Any

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	REA	REA	No Value	REA
NormUnit	Cap-Tons	Cap-Tons	Cap-Tons	No Value	Cap-Tons
EUL ID	GrocSys-FltHdPres	GrocSys-FltSucPres RefgWrhs-Cond	GrocSys-FltHdPres GrocSys-FltSucPres RefgWrhs-FltHdPres RefgWrhs-FltSucPres	No Value	GrocSys-FltHdPres GrocSys-FltSucPres
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs Ind-Default>2yrs	No Value	Com-Default>2yrs
DeliveryType	PreRebDown	PreRebDown	DirInstall PreRebDown	No Value	PreRebDown
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value	Def-GSIA

Measure Consensus
1.06b – Suction Controls - Multiplex Systems

- Offerings
  - Permutations vary by Climate Zone (16 CZ)
  - Permutations vary by Vintage (5 Vint)
- Issues Resolved
  - Moved Process Suction Control to Process Category for review
  - *Vintage permutations run through MASControl for additional Climate Zones*
  - Vintage governed by sensitive parameters:
    - Saturated Suction Temperature SP (SST)
  - *Cost updated to WO017 value (greater than DEER value)*
    - *Dependent upon "$ per suction group" but convert to "$ per ton"*
    - *Changed to weighted average of ton / suction group*
    - *Revising WO017 methodology that assumes labor but no material cost*
- Measure Extension
  - Added measure for POUs
- Phase 2 Activities
  - Potentially include Vintage

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Input Consensus
1.06b – Suction Controls - Multiplex Systems

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Gro	ECC,EUn,Hsp,Htl,MBT,MLI,Nrs,RFF,RSD,Rt3,RtL,RtS,SCn,WRf,OfS	No Value	Cnc,Com,Hsp,Htl,MBT,MLI,Nrs,RFF,RSD,Rt3,RtL,RtS,SCn
BldgVintage	1975,1985,1996,2003,2007	1975,1985,1996,2003,2007	Any	No Value	Any
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	No Value	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16
BldgHVAC	cWtd	cWtd	Any	No Value	Any

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	REA	REA	No Value	REA
NormUnit	Cap-Tons	Cap-Tons	Cap-Tons	No Value	Cap-Tons
EUL ID	GrocSys-FltSucPres	GrocSys-FltSucPres RefgWrhs-Cond	GrocSys-FltHdPres GrocSys-FltSucPres RefgWrhs-FltHdPres RefgWrhs-FltSucPres	No Value	GrocSys-FltHdPres GrocSys-FltSucPres
NTGR	Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs Ind-Default>2yrs	No Value	Com-Default>2yrs
DeliveryType	PreRebDown	PreRebDown	DirInstall PreRebDown	No Value	PreRebDown
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value	Def-GSIA

Measure Consensus
1.07 – Refrigeration Night Covers

- Offerings
  - Permutations vary by Offering
    - Low Temperature Open Horizontal Night Cover (34.1 kWh)
    - Low Temperature Open Vertical Night Cover (141.9 kWh)
    - Medium Temperature Open Vertical Night Cover (17.4 kWh)
  - Permutations vary by Climate Zone (16 CZ)
- Issues Resolved
  - Permutations due to PA have been averaged (<1%)
- Measure Extension
  - Added measure for POUs
- Phase 2 Activities
  - None

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Input Consensus
1.07 – Refrigeration Night Covers

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Asm,Gro,RFF,RSD,Rt3,RtL,RtS	Asm,Gro,RFF,RSD,Rt3,RtL,RtS	Asm	Asm,Gro,RFF,RSD,Rt3,RtL,RtS
BldgVintage	Ex	Ex	Any	Ex	Any
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16	CZ06,CZ08,CZ10,CZ14	CZ06,CZ08,CZ09,CZ10,CZ13,CZ14,CZ15,CZ16
BldgHVAC	cWtd	Wtd	Any	Any	Any

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	REA	REA	RET	REA
NormUnit	Len-ft	Len-ft	Len-ft	Each	Len-ft
EUL ID	GrocDisp-DispCvrs	GrocDisp-DispCvrs	GrocDisp-DispCvrs	GrocDisp-DispCvrs	GrocDisp-DispCvrs
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	PreRebDown	Any	DirInstall PreRebDown	PreRebDown	PreRebDown
GSIA	Def-GSIA	No Value	Def-GSIA	No Value	Def-GSIA

Measure Consensus
1.08 – Bare Refrigeration Line Insulation

- Offerings
  - Permutations vary by Freezer / Cooler
  - Permutations vary by Climate Zone (16 CZ)
- Issues Resolved
  - SDG&E methodology no longer being pursued; not offering measure
- Measure Extension
  - Added measure for POUs
  - Added measure for PG&E and SDG&E
    - Previously had versions of this measure but sunset
- Phase 2 Activities
  - Could be an additional measure for AB802

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Input Consensus
1.08 – Bare Refrigeration Line Insulation

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	No Value	Gro,RFF,RSD	Com	No Value
BldgVintage	Ex	No Value	Any	Ex	No Value
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	IOU	No Value
BldgHVAC	cWtd	No Value	Any	Any	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	No Value	REA	RET,ROB	No Value
NormUnit	Len-ft	No Value	Len-ft	Len-ft	No Value
EUL ID	RefgWrhs-SLIns	No Value	RefgWrhs-SLIns	WtrHt-PipeIns-Elec	No Value
NTGR	Com-Default>2yrs	No Value	Com-Default>2yrs	Com-Default>2yrs	No Value
DeliveryType	DirInstall PreRebDown	No Value	DirInstall PreRebDown	DirInstall PreRebDown	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	Def-GSIA	No Value

Measure Consensus
1.09 – Add Doors to Walk-in Cooler

- Offerings
  - Permutations vary by baseline fan (standard / efficient)
- Issues Resolved
  - Adding documentation for large matrix of DOE2.2r runs
- Measure Extension
  - Added measure for POUs
  - Added measures for SCE and SDG&E
- Phase 2 Activities
  - None

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Italics text = Item that has not been completed

Input Consensus
1.09 – Add Doors to Walk-in Cooler

- Measure Permutations

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

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	REA	No Value	No Value	No Value
NormUnit	Len-ft	Len-ft	No Value	No Value	No Value
EUL ID	GrocSys-Cndsr	GrocSys-Cndsr	No Value	No Value	No Value
NTGR	Agric-Default>2yrs Com-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	No Value	No Value	No Value
DeliveryType	PreRebDown	PreRebDown	No Value	No Value	No Value
GSIA	Def-GSIA	No Value	No Value	No Value	No Value

Measure Consensus
1.10 – Compressor Retrofit: Multiplex

- Offerings
  - Permutations vary by Climate Zone (16 CZ)
  - Permutations vary by Vintage (5 Vint)
  - Permutations vary by Offering (with and without Evap Condenser Upgrade)
  - Baseline varies with Measure Application Type (ER/ROB)
- Issues Resolved
  - *Vintage permutations run through MASControl for additional Climate Zones*
- Measure Extension
  - *Added measure for POUs*
  - *Added measures for SCE and SDG&E*
- Phase 2 Activities
  - None

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Input Consensus
1.10 – Compressor Retrofit: Multiplex

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Gro	No Value	No Value	No Value
BldgVintage	1975,1985,1996,2003,2007	1975,1985,1996,2003,2007	No Value	No Value	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05,CZ06,CZ07,CZ08,CZ09,CZ10,CZ11,CZ12,CZ13,CZ14,CZ15,CZ16	CZ01,CZ02,CZ03,CZ04,CZ05,CZ11,CZ12,CZ13,CZ16	No Value	No Value	No Value
BldgHVAC	cWtd	cWtd	No Value	No Value	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ER,ROB	ER,ROB	No Value	No Value	No Value
NormUnit	Cap-Tons	Cap-Tons	No Value	No Value	No Value
EUL ID	GrocSys-Cndsr	GrocSys-Cndsr	No Value	No Value	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	No Value	No Value	No Value
DeliveryType	PreRebDown	PreRebDown	No Value	No Value	No Value
GSIA	Def-GSIA	Def-GSIA	No Value	No Value	No Value

Measure Consensus
1.14 – FHP Controls - Single Compressors

- Offerings
  - Permutations vary by Climate Zone (9 CZ)
    - CZ01-CZ05, CZ11-CZ13, CZ16
- Issues Resolved
  - Documenting cost methodology
- Measure Extension
  - Added measure for POUs (9 CZ available)
- Phase 2 Activities
  - Additional Climate Zones models will be generated

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Input Consensus
1.14 – FHP Controls - Single Compressors

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Gro	No Value	No Value	No Value
BldgVintage	Ex	Ex	No Value	No Value	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04, CZ05,CZ11,CZ12,CZ13, CZ16	CZ01,CZ02,CZ03,CZ04, CZ05,CZ11,CZ12,CZ13, CZ16	No Value	No Value	No Value
BldgHVAC	cWtd	cWtd	No Value	No Value	No Value

- Measure Implementation

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

Measure Consensus
1.17a – Display Case Replacement - Like for Like

- Offerings
  - Permutations vary by Equipment Class
- Issues Resolved
  - Measures 1.02b and 1.16 removed because overlapping
    - New DOE rulemaking changing baseline conditions takes effect Jan 1, 2018
    - When replacing a display case, the baseline must be updated to this new standard
- Measure Extension
  - Added measure for POUs
- Phase 2 Activities
  - Adding interactive effects

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Input Consensus
1.17a – Display Case Replacement - Like for Like

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Gro	Asm,RFF,RSD,Rt3,RtL, RtS	Asm,Com,RSD,Rt3,RtL, RtS	Asm,RFF,RSD,Rt3,RtL, RtS
BldgVintage	Any	Ex	Any	Ex	Any
BldgLoc	Any	CZ01,CZ02,CZ03,CZ04, CZ05,CZ11,CZ12,CZ13, CZ16	CZ06,CZ08,CZ09,CZ10, CZ13,CZ14,CZ15,CZ16	CZ06,CZ07,CZ08,CZ10, CZ14,CZ15	CZ06,CZ08,CZ09,CZ10, CZ13,CZ14,CZ15,CZ16
BldgHVAC	cWtd	cWtd	Any	Any	Any

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROB	ER,ROBNC	ROB	REA
NormUnit	Len-ft	Len-ft	Len-ft	Len-ft	Len-ft
EUL ID	Cook-SDRef	GrocDisp-FixtDoors	Cook-SDRef GrocDisp-FixtDoors	GrocDisp-FixtDoors	GrocDisp-FixtDoors
NTGR	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs All-Default<=2yrs	Com-Default>2yrs	Com-Default>2yrs
DeliveryType	PreRebDown DirInstall NonUpStrm	PreRebDown	PreRebDown DirInstall NonUpStrm	PreRebDown	PreRebDown
GSIA	Def-GSIA	No Value	Def-GSIA	Def-GSIA	Def-GSIA

Measure Consensus
1.18 – Add Medium Temp Case Doors

- Offerings
  - Permutations vary by Climate Zone (16 CZ)
  - Permutations by baseline (with and without Night Covers)
- Issues Resolved
  - None
- Measure Extension
  - Added measure for POUs
- Phase 2 Activities
  - None

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Input Consensus
1.18 – Add Medium Temp Case Doors

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Gro	Asm,RFF,RSD,Rt3,RtL, RtS	No Value	No Value
BldgVintage	Ex	Ex	Any	No Value	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05, CZ06,CZ07,CZ08,CZ09,CZ10, CZ11,CZ12,CZ13,CZ14,CZ15, CZ16	CZ01,CZ02,CZ03,CZ04, CZ05,CZ06,CZ07,CZ08, CZ09,CZ10,CZ11,CZ12, CZ13,CZ14,CZ15,CZ16	CZ06,CZ08,CZ09,CZ10, CZ13,CZ14,CZ15,CZ16	No Value	No Value
BldgHVAC	cWtd	cWtd	Any	No Value	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	REA	REA	No Value	No Value
NormUnit	Len-ft	Len-ft	Len-ft	No Value	No Value
EUL ID	GrocDisp-FixtDoors	GrocSys-Cndsr	GrocDisp-FixtDoors	No Value	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs	No Value	No Value
DeliveryType	PreRebDown	PreRebDown	PreRebDown	No Value	No Value
GSIA	Def-GSIA	No Value	Def-GSIA	No Value	No Value

Measure Consensus
1.19 – Adaptive Refrigerator and Freezer Controls

- Offerings
  - Permutations vary by Climate Zone (16 CZ)
  - Permutations vary by Offering (Cooler / Freezer)
- Issues Resolved
  - None
- Measure Extension
  - Added measure for POUs
  - Added measure for SCE and SDG&E
- Phase 2 Activities
  - None

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Input Consensus
1.19 – Adaptive Refrigerator and Freezer Controls

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Com	Gro,RFF,RSD,Rt3,RtL, RtS	No Value	No Value	No Value
BldgVintage	Ex	Ex	No Value	No Value	No Value
BldgLoc	CZ01,CZ02,CZ03,CZ04,CZ05, CZ06,CZ07,CZ08,CZ09,CZ10, CZ11,CZ12,CZ13,CZ14,CZ15, CZ16	CZ01,CZ02,CZ03,CZ04, CZ05,CZ11,CZ12,CZ13, CZ16	No Value	No Value	No Value
BldgHVAC	cWtd	cWtd	No Value	No Value	No Value

- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	ROB	No Value	No Value	No Value
NormUnit	Cap-Tons	Cap-Tons	No Value	No Value	No Value
EUL ID	GrocSys-MechSubcl	GrocSys-MechSubcl	No Value	No Value	No Value
NTGR	Com-Default>2yrs	Com-Default>2yrs	No Value	No Value	No Value
DeliveryType	PreRebDown	PreRebDown	No Value	No Value	No Value
GSIA	Def-GSIA	Def-GSIA	No Value	No Value	No Value

Measure Consensus
1.22 – Com Reach-In Refrigerators and Freezers

- Offerings
  - Permutations vary by Refrigerator / Freezer
  - Permutations vary by Solid / Glass Door
  - Permutations vary by Size
    - <15 ft^3 (under-counter),
    - 15-29 ft^3 (single door),
    - 30-49 ft^3 (double door),
    - >50 ft^3 (triple door)
- Issues Resolved
  - Aligned SDG&E savings to the others
  - *Document and remove coincidence diversity factor (0.9)*
    - *Believe this was added because it was part of Food Services category originally*
- Phase 2 Activities
  - None

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Input Consensus
1.22 – Com Reach-In Refrigerators and Freezers

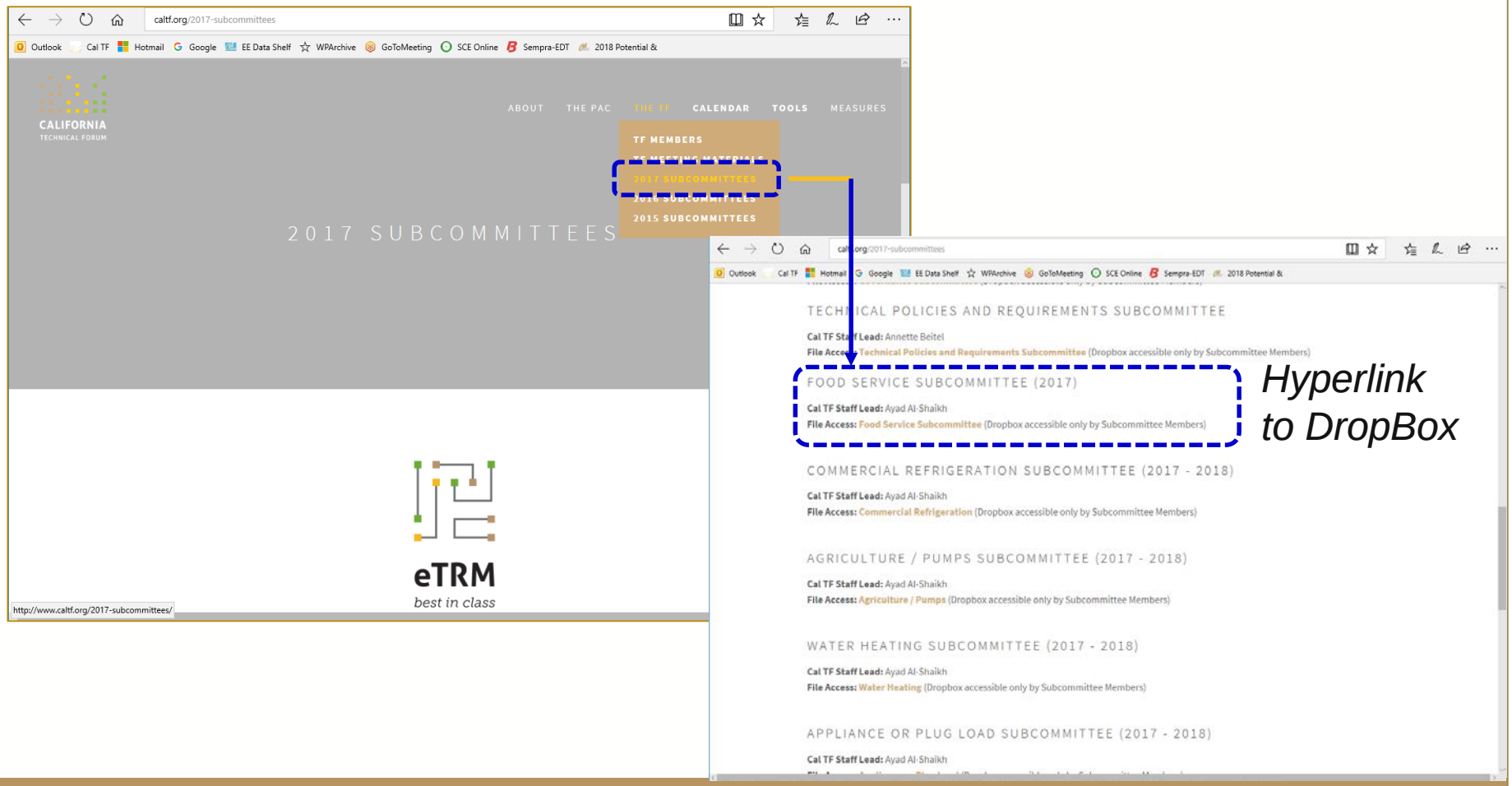
- Measure Permutations

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

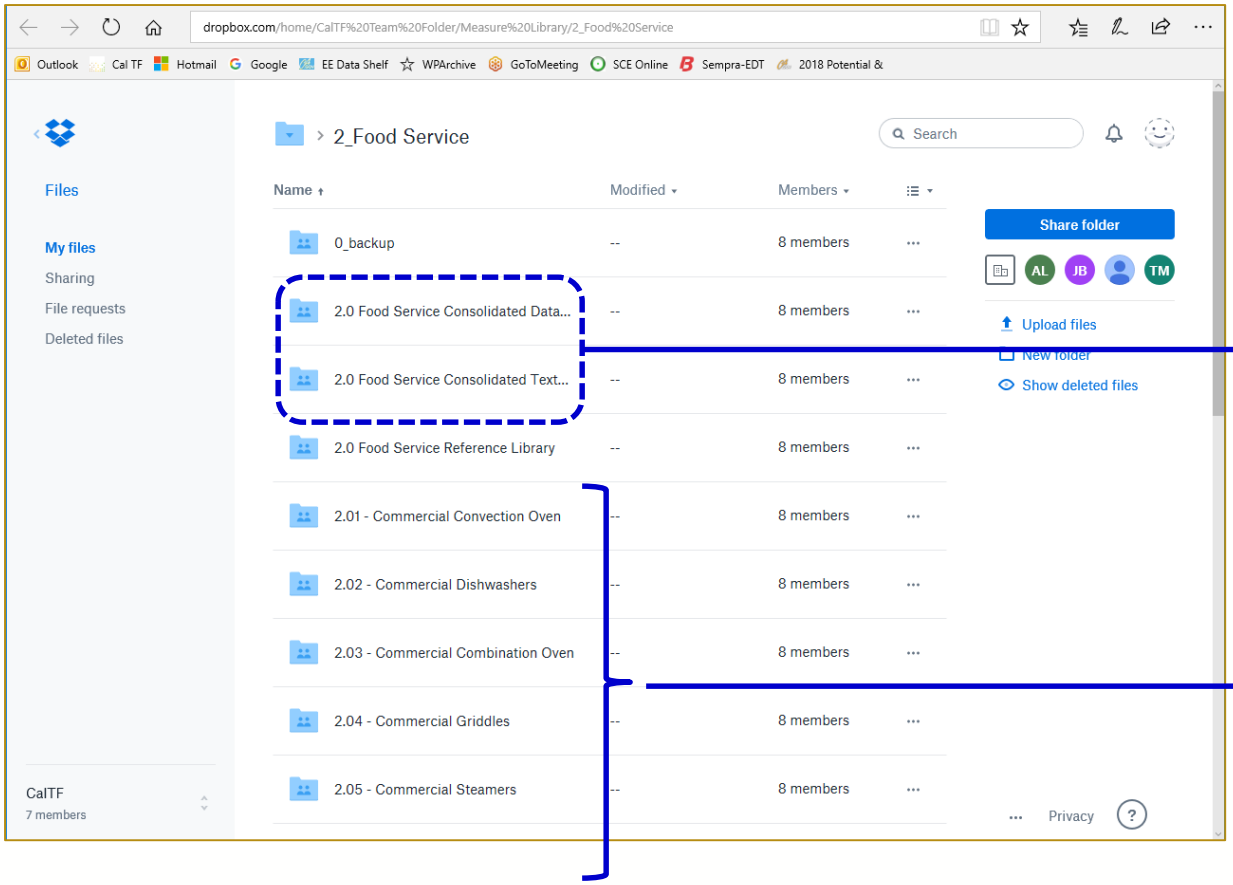
- Measure Implementation

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROBNC	ROB	ER,ROBNC	ROB	No Value
NormUnit	Each	Each	Each	Each	No Value
EUL ID	Cook-SDFreez Cook-SDRef	Cook-GDRef Cook-SDFreez Cook-SDRef	Cook-SDFreez Cook-SDRef	Cook-SDFreez Cook-SDRef	No Value
NTGR	Com-Default>2yrs Agric-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	Com-Default>2yrs Agric-Default>2yrs Ind-Default>2yrs	Com-Default>2yrs	No Value
DeliveryType	PreRebDown	PreRebDown	NonUpStrm PreRebDown	PreRebDown	No Value
GSIA	Def-GSIA	Def-GSIA	Def-GSIA	Def-GSIA	No Value

Accessing DropBox



Accessing DropBox



Consolidated Text and Data Files

Measure Folders (ie, workpaper storage)