

Strategic Measure Consolidation Plan



ANNETTE BEITEL
APRIL 2017

Presentation Overview



2

2017 Cal TF Business Plan

- Strategic Measure Consolidation Plan

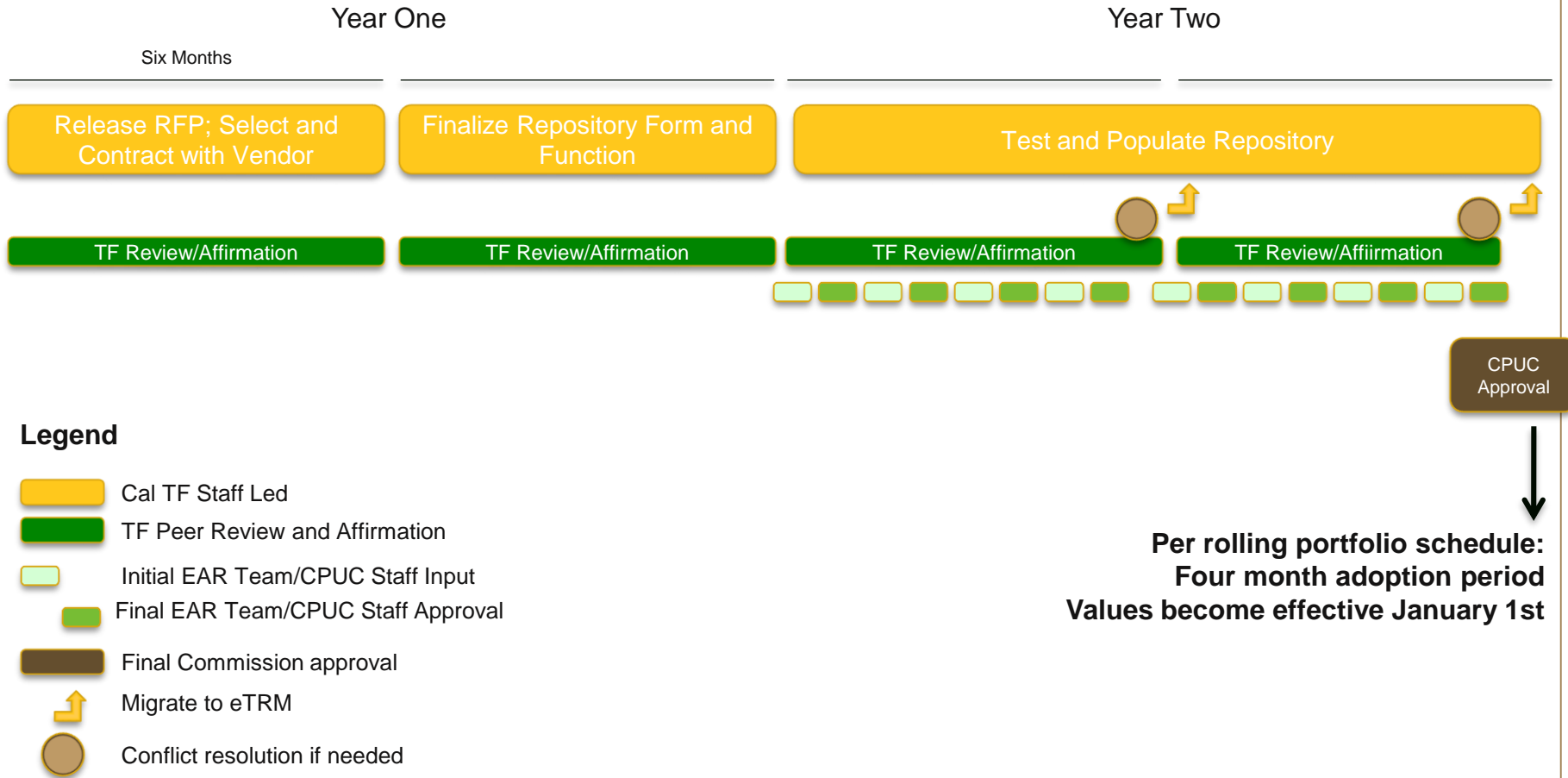
Related Metrics

- Consolidate at least 75 measures into the streamlined data specification by 12/31/17
- First ten measures by July 31, 2017
- At least ten measures monthly thereafter, with total of 75 by the end of December

eTRM Implementation Overview:

Measure Consolidation and Review

Repository Creation and Population



Key Steps for Measure Consolidation

4

- Eliminate measures that are “on the books” that are not likely be used in 2018.
- Group remaining measures into end uses.
- Determine how many workpapers exist in end use category.
- Review the workpapers identified and determine which overlap and should be consolidated.
- Cal TF staff will consolidate measures.
- Subcommittee, then full TF, will provide guidance on key technical issues that need to be addressed and resolved.

“Measure Type” Categories

5

A review of the 336 unique measures suggests a list of eleven initial categories. The categories and the approximate number of unique measures in each are:

- HVAC (84)
- Lighting (74)
- Appliance/Plug Load (40)
- Water Heating (35)
- Refrigeration (22)
- Food Service (20)
- Process (19)
- Agriculture/Pumping (13)
- Pools (12)
- Miscellaneous (10)
- Building Envelope (7)

Eliminate Unused Measures

6

Over the last several years many measures were developed. As the IOU portfolios have matured, certain measures no longer made sense to offer.

- Rather than eliminate or cancel such measures, they “stayed on the book” but were not used
- Measure consolidation process has identified and excluded measures that aren’t used or are not likely to be used in 2018
- For example, PG&E recently reviewed existing measures, and estimated up to 50% of their current measures may be retired/eliminated
 - Some measures may be “revived” due to “existing conditions” baseline directives.

Strategic Criteria





7

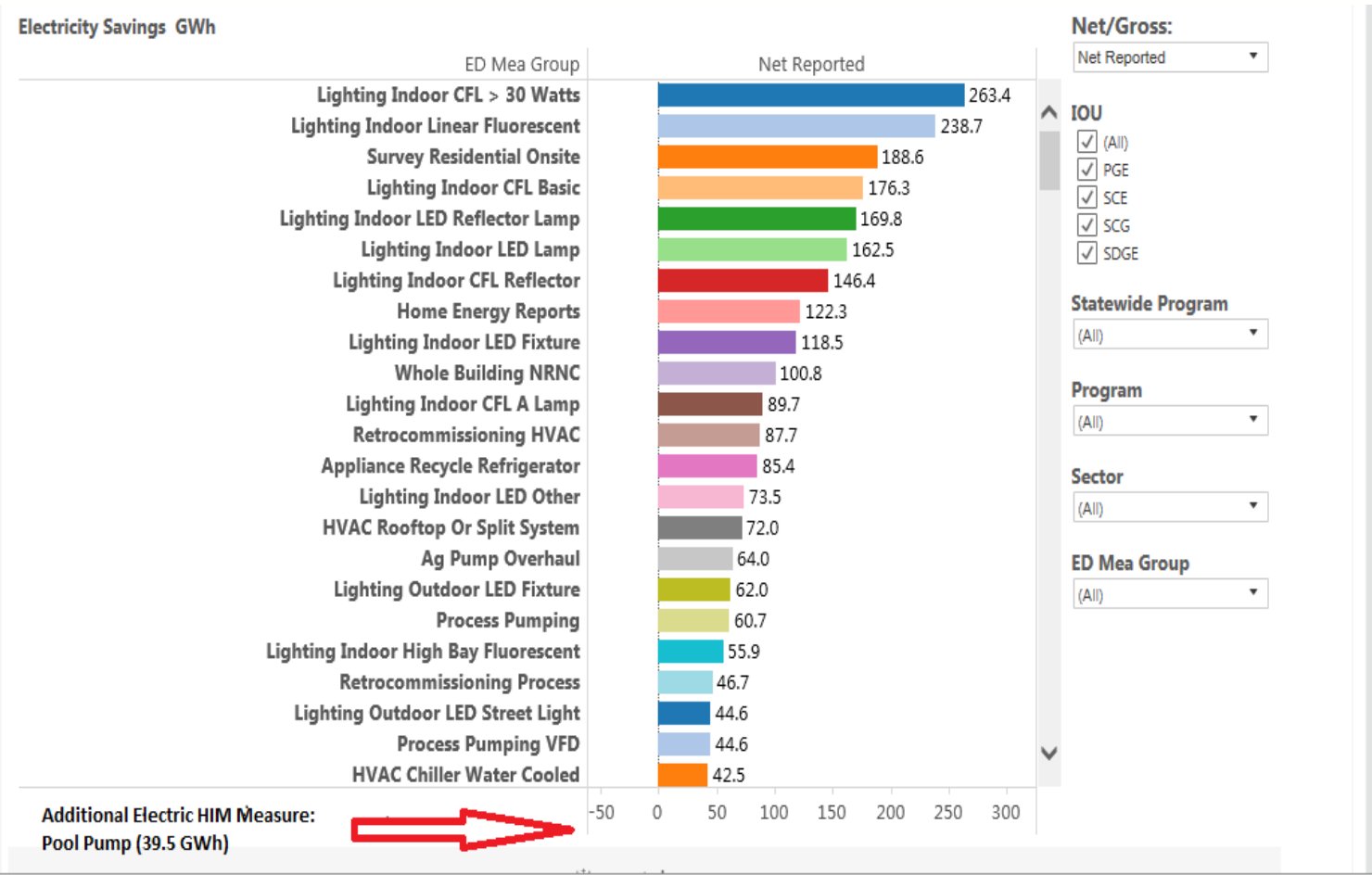
Strategic approach for selecting first 75 measures to consolidate in 2017.

Criteria Used:

- HIMs (provide more than 1% of savings statewide)
 - Readily available data to identify HIMs: EESTAT data from 2013 – 2015. Only covers IOUs. POUs also provided input
- Measures that are largely consistent already
 - Higher Consistency: Agriculture, refrigeration, food service and water heating
- Measures that are technically easier to characterize
 - Considerations: Engineering equations vs. modeling; no interactive effects
- Avoid highly complex or super-controversial measures
 - HVAC, VRF
- Start limited number of measures from 2018 to understanding/start addressing issues
 - Lighting/HVAC

2013-2015 Statewide High Impact Electric Measure Groups (From EEStats)

-  Market Sector
-  Measures
-  EndUse
-  Building Type







2013-2015 Statewide High Impact Electric Measures

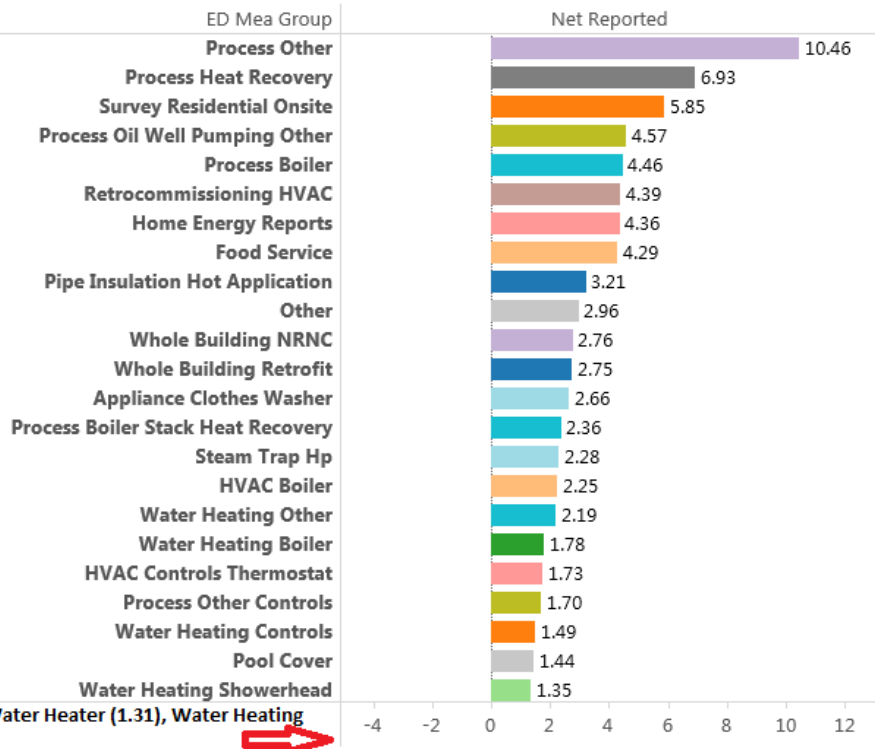
During the 2013-2015 program cycle, there were 24 measures that contributed 1% or more to net statewide electricity savings:

- *The top ten measures were responsible for 43.7% of the net statewide savings during the program cycle*
- In total, the 24 HIMs represented 66.2% of the total savings from 2013-2015
- The remaining savings (33.8%) came from an additional 167 measures during the 2013-2015 program cycle
- A number of measures are also listed in EEStats for the 2013-2015 program cycle showing zero savings, what do they represent?

2013-2015 Statewide High Impact Gas Measures Groups (From EEStats)

-  Market Sector
-  Measures
-  EndUse
-  Building Type

Gas Savings MMTh



Net/Gross:
Net Reported

IOU
 (All)
 PGE
 SCE
 SCG
 SDGE

Statewide Program
(All)

Program
(All)

Target Sector
(All)

ED Mea Group
(All)

Three additional gas HIM measures: Water Heating Tankless Water Heater (1.31), Water Heating Storage Water Heater (1.19), VAC Fan Controls (.99)

2013-2015 Statewide High Impact Gas Measures

During the 2013-2015 program cycle, there were 26 measures that contributed 1% or more to net statewide electricity savings:

- *The top ten measures were responsible for 58.4% of the net statewide savings during the program cycle*
- In total, the 26 HIMs represented 92.7% of the total savings from 2013-2015
- The remaining savings (7.3%) came from an additional 69 measures during the 2013-2015 program cycle
- A number of measures are also listed in EEStats for the 2013-2015 program cycle showing zero savings, what do they represent?

Proposal for First 75 Measures

- Consider measures that lend themselves to consolidation based on them already being quasi-statewide measures:
 - Refrigeration
 - Food Service
 - Agriculture
 - Domestic Hot Water
- Consider historical gas and electric HIM measures and determine which are likely to again be HIMs going forward and select subset for 2017 development (5 gas, 5 electric)
- Identify a list of less complex measures like plug load measures (i.e. savings determined by engineering calculations, no modeling required)

Finalizing Measures for 2017/2018

13

- Created updated Statewide Measure List (2017)
 - Gathered all active (2017) IOU workpapers
 - Reviewed POU TRM
 - Identified DEER Measures being used that do not have IOU workpapers (11)
 - Identify overlapping workpapers
- Prioritize measures for 2017
 - Cal TF meeting (Jan 2017)- Presented strategic approach for selecting first 75 measures
 - ✦ Next several weeks worked with IOU's/POU's to ID overlapping or priority workpapers to target in 2017
 - Cal TF meeting (Feb 2017) - Presented results of 2017 targeted measure feedback
 - ✦ Of the list reviewed, consensus reached on first 70 measures to target
 - ✦ 19 measures not recommended for placement in eTRM
- Identify measures that will still be offered in 2018 including new measures
 - IOU / POU multiple rounds of input
 - ID'ing measures potentially affected by existing conditions baseline ruling
 - ID'ing measures potentially affected by other CPUC req's (e.g. dispositions, code, etc)
 - Of remaining measures, 83 measures not recommended for placement in eTRM

Measure Consolidation Strategic Plan

14

- Result
 - List of Measures for 2017 eTRM review/placement
 - List of Measures for 2018 eTRM review/placement
 - Statewide Measure List that will be updated on a monthly basis
- Big Caveat
 - How will existing conditions baseline policy change the list of retired measures?
 - Changes to code?
 - New dispositions?
 - What new measures will be developed?
 - ✦ 2018 placement

Result: Category Groups for eTRM

15

- 2017 Categories

- Refrigeration
- Food Service
- Agriculture / Pumps
- Water Heating
- Appliance or Plug Load

- 2018 Categories

- HVAC / Motors
- Lighting
- Building Envelope
- Miscellaneous
- Pools
- Process

Category Groups for eTRM (Number of Measures – 2017 / 2018)

16

1. Commercial Refrigeration (12 / 9)
2. Food Service (14 / 1)
3. Agriculture / Pumps (5 / 1)
4. Water Heating (18 / 13)
5. Appliance or Plug Load (13 / 16)
6. Lighting (3 / 28)
7. HVAC / Motors (2 / 67)
8. Building Envelope (0 / 4)
9. Miscellaneous (1 / 7)
10. Pools (1 / 5)
11. Process (2 / 12)

71 Measures in 2017 (so far); **163** Measures in 2018.

Appendix

17

- List of 2017 Measures

Proposal: Specific Measures to Target in 2017

Refrigeration (12)

- Anti-Sweat Heater (ASH) Controls
- Anti-Sweat Heater Display Doors
- Evaporator Fan Motors
- Refrigerated Storage Auto Closer
- Walk-in Cooler Evaporative Fan Cycling and VFD Control
- Refrigeration Head Pressure Controls
- Refrigeration Night Covers
- Bare Refrigeration Line Insulation
- Display Cases with Doors
- Add Med Temp Case Doors
- Adaptive Refrigerator and Freezer Controls Commercial
- Ultra Low Temperature Freezer

Proposal: Specific Measures to Target in 2017

Food Service (14)

- Commercial Convection Oven
- Commercial Dishwashers
- Commercial Electric Combination Oven
- Commercial Electric Griddles
- Commercial Electric Steamers
- Commercial Ice Machines
- Insulated Hot Food Holding Cabinets
- Commercial Conveyor Oven-Gas
- Commercial Electric Deck Oven
- Commercial Hand Wrap Machines
- Electric Fryers
- Exhaust Hood Demand Controlled Ventilation
- Low-Flow Pre-Rinse Spray Valves Direct Install
- Commercial High Density Universal Holding Cabinets

Proposal: Specific Measures to Target in 2017

Agriculture (5)

- Agricultural Pump System Overhaul for Pumps Up To 25 HP
- Agricultural Ventilation Fans
- Farm Sprinkler to Micro Irrigation Conversion
- Low Pressure Sprinkler Nozzles
- Variable Frequency Drive on Agricultural Well Pumps

Proposal: Specific Measures to Target in 2017

Domestic Hot Water (18)

- Boiler, Commercial
- Tankless, Commercial
- Storage Water Heater, Commercial
- Direct Contact Water Heater, Process
- Boiler, Multi-Family
- Central Storage Water Heater, MF
- Storage Water Heater, Residential
- Tankless, Residential (SF & MF)
- Heat Pump Water Heater
- Demand Control for Centralized Water Heater Recirculation Pump
- Multifamily DHW RCx, Training, and Boiler Reset Controller
- Hot Water Line Insulation Electric/Gas
- Faucet Aerator and Low Flow Showerhead
- Faucet Aerators for Bathroom/Kitchen Sinks in Residential Buildings
- Low-Flow Showerheads
- Laminar Flow Restrictor
- Recirculation Pump Time Clocks

Proposal: Specific Measures to Target in 2017

Appliance and Plug Load Measures (13)

- Beverage Merchandise Controller
- Vending Machine Controller
- Commercial Reach-In Refrigerators and Freezers
- Energy Star Clothes Dryers
- Energy Star Clothes Washers
- Energy Star Refrigerator
- Ozone Laundry Nonresidential
- Power Management Software for Networked Computers
- Res Ozone Laundry
- Retail Plug Load
- Smart Power Strips
- Tier 2 Advanced Power Strip
- Refrigerator and Freezer Recycling

Proposal: Specific Measures to Target in 2017

High Impact Measures:

Work with IOU's/POU's to ID future HIMs (9)

HVAC

- Ductless Mini-Split AC Units under 24 kBTU/hr
- Ductless Mini-Split / Multi-Split AC / HP units under 65 kBTU/hr

Lighting

- Fluorescent Lamp to Fluorescent Lamp
- Interior LED Downlight Fixtures
- Interior LED Lamps

Pools / Process / Misc

- Commercial Pool Cover
- Process Boilers
- Pipe Insulation (Non-Space Conditioning)
- Residential Onsite Survey