Water Heating
Q1 Measures
Cal TF Tier 2 Presentation

CALIFORNIA
TECHNICAL FORUM

AYAD AL-SHAIKH

APRIL 2018

Water Heating Measures - Revised List

CALIFORNIA TECHNICAL FORUM

No.		Measure Names	Plan	PG&E	SCE	SDG&E	SCG	POU
6.01	Flow	Faucet Aerator and Low Flow Showerhead	2017	Consolidated				
6.02		Faucet Aerators for Bathroom/Kitchen Sinks in Residential Buildings	2017			■	■	■
6.03		Low-Flow Showerheads	2017			■	■	■
6.04		Temp-Initiated Shower Flow Restr. Valve w&w/o LF Showerhead	2017			■	■	
6.05		Laminar Flow Restrictor	2017			■	■	
6.06		Therm Savings Kit	2018	Consolidated				
6.07	Water Heaters	Boiler, Commercial	2017	■		■	■	
6.08		Tankless, Commercial	2017	■		■	■	
6.09		Storage Water Heater, Commercial	2017	■		■	■	
6.10		Boiler, Process	2017	■		■	■	
6.11		Direct Contact Water Heater, Process	2017	■		■	■	
6.12		Boiler, Multi-Family	2017	■			■	
6.13		Central Storage Water Heater, MF	2017	■			■	
6.14		Storage Water Heater, Residential	2017	■		■	■	■
6.15		Tankless, Residential	2017	■		■	■	
6.16		Heat Pump Water Heater	2017	■		■	■	
6.17	Controls	Multifamily DHW RCx, Training, and Boiler Reset Controller	2017	Combined with 6.19				
6.18		Demand Control for Centralized Water Heater Recirculation Pump	2017	■	■	■	■	
6.18b		Demand Control for Centralized Water Heater Recirculation Pump, VFD	2018					
6.19		Commercial Boiler Water Heating Control System	2017	■			■	
6.20	Insul.	MF Central Recirc System Pipewrap	2018	Hold - Sunset				
6.21		Hot Water Line Insulation Electric/Gas	2017			■	■	■
6.22		Tank Insulation	2017	■		■	■	
6.23	New	Faucet Aerators for Lavatory Sinks in Commercial Buildings	2017					
6.24		Low-Flow Showerheads, Commercial	2018					
6.25		Recirculation Pump Time Clocks	2018					
6.26		Smart Pump, Residential	2018					

⭐ Blue text = 2018 Measures

■ Lead Workpaper
■ Supporting Workpaper

"Cal TF affirms the subcommittee recommendations regarding 'Stage 1 Issues' for Water Heating Measures."

- 6.24, Low-Flow Showerheads, Commercial
- 6.25, Recirculation Pump Time Clocks
- 6.26, Smart Pump, Residential

Not Included:

- 6.18b, Demand Control for Centralized Water Heater Recirculation Pump (On Hold)

Measure Consensus
6.24 – Commercial Showerheads

- ## Offering
  - ❏ Commercial (Hotel, Motel, Com); Gas Only
  - ❏ Flow Rate - 1.5 and 1.8 gpm
  - ❏ Implementation: Early Retirement / Accelerated Replacement (ER/AR), Direct Install

- ## Stage 1 Issues
  - ❏ Single SCG workpaper
  - ❏ Com building type savings derived from school-specific data

- ## Measure Extension
  - ❏ Added measure for POUs (gas measure)
  - ❏ Added measure for PG&E and SDG&E (gas measure)

- ## Stage 2 Issues
  - ❏ *Add embedded energy in water based from WEN Calculator*
  - ❏ *Data collection on pre-existing aerators to determine baseline size and water usage*

Black text = Current state of the consolidated measure
Blue text = Changing and / or first time item is mentioned
Italics text = Item that has not been completed

- ## Measure Permutations

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

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ER	No Value	No Value	No Value	ER
NormUnit	Each	No Value	No Value	No Value	Fixture
EUL ID	WtrHt-WH-Shrhd	No Value	No Value	No Value	WtrHt-WH-Shrhd
RUL ID	WtrHt-WH-Shrhd	No Value	No Value	No Value	No Value
NTGR	All-Default<=2yrs	No Value	No Value	No Value	All-Default<=2yrs
DeliveryType	DirInstall	No Value	No Value	No Value	DirInstall
GSIA	Def-GSIA	No Value	No Value	No Value	No Value

Measure Consensus
6.25 – Recirc Pump Timer

- ## Offering
    - Com Bldgs (Cnc, EPr, ESe, Fhc, OfL, OfS); Existing 24-hr recirculation system
        - Cnc = Health/Medical – Clinics
        - EPr = Education - Primary School
        - ESe = Education - Secondary School
        - Fhc = Fitness Center - Private Health Club
        - OfL = Office – Large
        - OfS = Office - Small
    - Implementation: Retrofit Add On / Add-On Equipment (REA/AOE); PreRebDown

- ## Stage 1 Issues
    - Updated labor cost to match "NR-Misc rate"
    - Measure name changed from "Time Clock" to "Timer" based upon the current naming of products in the market

- ## Measure Extension
    - Added measure for POUs

- ## Stage 2 Issues
    - Should building types be extended to include others: Restaurant – Sit Down

Black text = Current state of the consolidated measure
Blue text = Changing and / or first time item is mentioned
Italics text = Item that has not been completed

Input Consensus
6.25 – Recirc Pump Timer

- Measure Permutations

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
BldgType	Cnc,EPr,ESe,Fhc,OfL,OfS	No Value	No Value	No Value	Cnc,EPr,ESe,Fhc,OfL,OfS
BldgVintage	Ex	No Value	No Value	No Value	Ex
BldgLoc	Any	No Value	No Value	No Value	Any
BldgHVAC	cWtd	No Value	No Value	No Value	cWtd

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	No Value	No Value	No Value	REA
NormUnit	Each	No Value	No Value	No Value	Installation
EUL ID	WtrHt-Timeclock	No Value	No Value	No Value	Wtr-Ht-Timeclock
RUL ID	Motors-pump	No Value	No Value	No Value	No Value
NTGR	All-Default<=2yrs	No Value	No Value	No Value	All-Default<=2yrs
DeliveryType	PreRebDown	No Value	No Value	No Value	PreRebDown
GSIA	Def-GSIA	No Value	No Value	No Value	No Value

- ## Offering

  - ❑ Res only

  - ❑ Implementation: Replace on Burnout / Normal Replacement (ROB/NR); PreRebUp (upstream) / NonUpStrm (midstream)

- ## Stage 1 Issues

  - ❑ Different NTGR for POUs versus IOUs

- ## Measure Extension

  - ❑ Added measure for POUs

- ## Stage 2 Issues

  - ❑ Ensure that the eTRM handle different NTGR for POUs

Black text = Current state of the consolidated measure
Blue text = Changing and / or first time item is mentioned
Italics text = Item that has not been completed

- ## Measure Permutations

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

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	ROB	ROB	No Value	No Value	No Value
NormUnit	Each	Each	No Value	No Value	No Value
EUL ID	Motors-pump	Motors-pump	No Value	No Value	No Value
RUL ID	N/A	No Value	No Value	No Value	No Value
NTGR	All-Default<=2yrs 0.875 (POU-only)	All-Default<=2yrs	No Value	No Value	No Value
DeliveryType	PreRebUp NonUpStrm	PreRebUp	No Value	No Value	No Value
GSIA	Def-GSIA	No Value	No Value	No Value	No Value

"Cal TF affirms the subcommittee recommendations regarding 'Stage 1 Issues' for Water Heating Measures."

- 6.24, Low-Flow Showerheads, Commercial
- 6.25, Recirculation Pump Time Clocks

- Affirmed subject to Stage 2 Items:
  - ❑ 6.24: SCG to collect BT in addition to baseline data
    - ✕ When data is collected, consider whether COM should still be an applicable building type

Measure Consensus
6.18b – DHW Pump Demand Control

- ## Offering
  - ❑ MF and Com Bldgs (EUD, Htl, Mtl, Nrs); Existing Buildings with Central Water Heater
    - ✗ EUD = University Dorm
    - ✗ Htl = Hotel
    - ✗ Mtl = Motel
    - ✗ Nrs = Health/Medial – Nursing Home
  - ❑ Gas-reduced operation; electric from pump only
  - ❑ Implementation: Retrofit Add On / Add-On Equipment (REA/AOE); Direct Install (DI) and PreRebDown
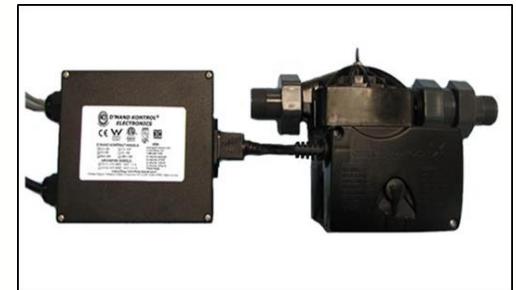
- ## Stage 1 Issues
  - ❑ Consider the treatment of MFm-Common Area as "commercial"
    - ✗ Sector = Com
    - ✗ NTG_ID = Com-Default>2
    - ✗ EUL_ID – typically commercial related (not an issue for this measure)
  - ❑ How approach a situation where a new Measure overlaps an existing Measure?
    - ✗ *Overlap in scope with 6.18a – MF DHW Pump Control (on/off)*

- ## Measure Extension
  - ❑ Added measure for POUs

- ## Stage 2 Issues
  - ❑ None

Black text = Current state of the consolidated measure
Blue text = Changing and / or first time item is mentioned
Italics text = Item that has not been completed

Input Consensus
6.18b – MF DHW Pump Control

- ## Measure Permutations

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

	eTRM Measure Value	PG&E	SCE	SDG&E	SCG
MeasureAppType	REA	No Value	No Value	No Value	REA
NormUnit	Household	No Value	No Value	No Value	Household
EUL ID	WtrHt-Timeclock	No Value	No Value	No Value	WtrHt-Timeclock
RUL ID	Motors-pump	No Value	No Value	No Value	No Value
NTGR	Com-Default>2	No Value	No Value	No Value	Res-Default>2 Com-Default>2
DeliveryType	DirInstall	No Value	No Value	No Value	DirInstall
GSIA	Def-GSIA	No Value	No Value	No Value	No Value

- Savings Perspective

2016 CA Gas Savings (therms/yr)
(Total = 12MMTh/yr, not including negative Lighting effects)

**Water Heating
4.9 MMTh/yr
41%**

**Flow Restriction:
Showers and Aerators**