

Cal TF Custom Subcommittee Meeting #1



CALIFORNIA
TECHNICAL FORUM

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NOVEMBER 2, 2022

Subcommittee Overview

Subcommittee Objective

1) develop standard savings estimation methods, calculation tools, and data requirements for select custom measures

Outcome: Recommend SW standard methods/tool/requirements for TF review

2) develop a statewide naming convention for custom measures

Outcome: Recommend SW standard nomenclature for custom measures for TF review

3) provide input on Cal TF Staff analysis of how existing eTRM tools can be used to standardize and streamline custom projects

Outcome: Recommend eTRM enhancements to support custom measures; TBD

Agenda & Goals

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- **Meeting Agenda**

- Updates [10 min]
- Debrief from 10/27 Custom Charette [15 min]
- Measure Group Updates [90 min, 10-15 mins each]
- Wrap-up & Action Items [5 min]

- **Meeting Goals**

- Provide summary of Custom Charette & next steps
- Provide updates and collect input on measure-specific methods

Subcommittee Information

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- Meetings
 - Subcommittee – 1st Wednesdays 1pm to 3pm
 - Measure Group Meetings – see Cal TF Subcommittee webpage
- Subcommittee SharePoint Site
 - futeeenergy.sharepoint.com/sites/CalTFCustomSubcommittee
 - Measure-specific working materials
- Cal TF Website
 - Meeting materials posted on Cal TF website
 - www.caltf.org/2022-subcommittees
- Questions: arlis.reynolds@futee.biz or 949-394-4339

Measure Group Meetings

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Measure Groups

Measure groups meet on a biweekly basis for measure-specific discussions. See the Meetings Calendar for schedule and participation information and/or use the links below to download and copy the meeting invitations to your calendar.

Measure-specific materials are on the **Custom Subcommittee SharePoint site**.

- Boilers+ (Measure Lead: **Steven Long**)
 - Meets Fridays at 1pm - **request meeting invitation**
- Chillers (Measure Lead: **Armen Saiyan**)
 - Meets Mondays at 9am - **request meeting invitation**
- Pumps + Pump Overhaul (Measure Lead: **Eric Noller** and **Glen LaPalme**)
 - Meets Mondays at 3pm - **request meeting invitation**
- RCx (Measure Lead: **Spencer Lipp**)
 - Meets Thursdays at 1pm - **request meeting invitation**
- Small HVAC (Measure Lead: **Kristin Heinemeier**)
 - Meets Thursdays at 2pm - **request meeting invitation**
- VFD on HVAC Fans (Measure Lead: **Armen Saiyan**)
 - Meets Mondays at 10am - **request meeting invitation**

Click links to
request meeting
invitations

Note that meeting times may be adjusted and should be reflected in the outlook invitation.

www.caltf.org/2022-subcommittees

Custom Charette Debrief

10/27 in Los Angeles

- **Goals**
 - Stakeholder discussions to shape long term custom roadmap for Cal TF/eTRM
- **Participation**
 - 30 in-person and 34+ unique online participants
 - All stakeholders represented: IOUs, LADWP, CPUC + consultants, implementers, and TF members
- **Topics**
 - Standardizing Custom Methods and Tools
 - Standardizing Custom Reporting Codes (Offering IDs)
 - Improving Custom Project Packages
 - Clarifying Regulatory Guidance and Improving the Disposition Database
 - ISP/Baseline Guidance
 - NTG/Attribution
 - eTRM capabilities for custom measures, custom projects, and technical review workflows
- **Next Steps**
 - 11/17 TF Meeting: eTRM capabilities/opportunities for Custom
 - 12/15 TF Meeting: Scope & sequence custom work areas
 - 2023 Business Plan

Custom Measures

Objective: develop standard savings estimation methods, calculation tools, and data requirements for select custom measures

- Measure-Specific Discussions
 - Discuss measure scope and key resources
 - Provide input on scope, examples, challenges, and other resources
- Measure List
 - Boiler+
 - Pumps + Pump Overhaul (combined)
 - Chiller Measures
 - Small HVAC
 - RCX
 - VFD on HVAC Fan

Custom Measures

Objective: develop standard savings estimation methods, calculation tools, and data requirements for select custom measures

Measure Standardization Approach [draft]

start

ID measures for statewide standardization

- Subcommittee identify Measure Champion (MC)
- Stakeholders share resources, experts, background information, etc.
 - Upload key resources to SharePoint
- MC develop initial draft for SW recommendations
 - Measure definition (scope and boundaries)
 - Measure characterization
 - Savings estimation methods
 - Guidelines for site-specific parameters
 - Data collection and M&V requirements
 - Determine whether tool is needed
- Input from TF, CPUC, other stakeholders
- MC revise based on feedback
- Subcommittee affirmation
- Send recommendation to the TF for review/approval
- Publish custom measure in the eTRM
- Request CPUC Early Opinion on “hybrid” approach



goal

Cal TF approved savings methods, hosted in the eTRM for transparency and access

Measures of Success

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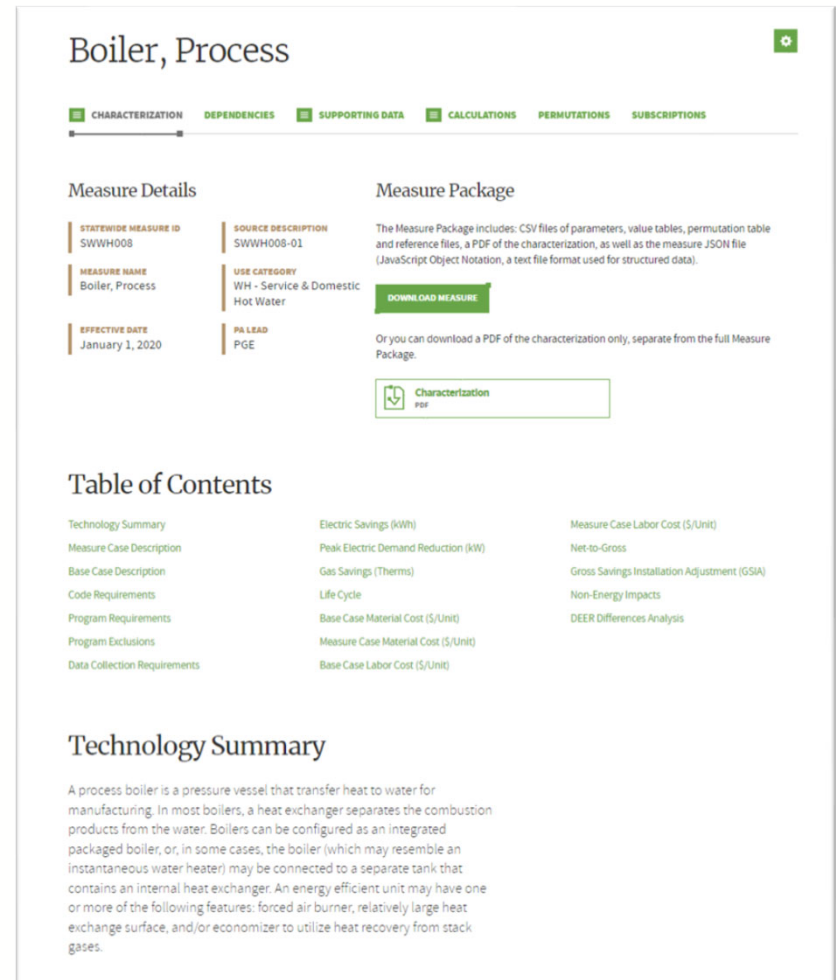
- Implementers **use** the methods & tools
- Methods and data/documentation requirements are **clear and pre-defined**
- **Reduced time and cost** to develop measures
- **Increased consistency** in measure submittals
- **Reduced back-and-forth** in project reviews; reduced review times
- **Increased measure activity**, number of measures, savings
- **Increased stakeholder confidence** in submittals and savings
- Long term **movement toward deemed**
- **Others?**

Measure Characterization Fields

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Measure Champions will continue to draft Measure Characterizations including savings calculation approach with stakeholder input

- Technology Summary
- Measure Case Description
- Base Case Description
- Code Requirements
- Program Requirements/Exclusions
- Data Collection Requirements
- M&V Requirements [ADDED]
- kWh, kW, and Therms Savings (TBD)
- Life Cycle (EUL)
- Base Case Material Cost (\$/Unit)
- Measure Case Material Cost (\$/Unit)
- Base Case Labor Cost (\$/Unit)
- Measure Case Labor Cost (\$/Unit)
- Net-to-Gross
- Gross Savings Installation Adjustment (GSIA)
- Non-Energy Impacts
- DEER Differences Analysis



Boiler, Process

CHARACTERIZATION DEPENDENCIES SUPPORTING DATA CALCULATIONS PERMUTATIONS SUBSCRIPTIONS

Measure Details

STATEWIDE MEASURE ID: SWWW008

MEASURE NAME: Boiler, Process

EFFECTIVE DATE: January 1, 2020

SOURCE DESCRIPTION: SWWW008-01

USE CATEGORY: WH - Service & Domestic Hot Water

PAL/LEAD: PGE

Measure Package

The Measure Package includes: CSV files of parameters, value tables, permutation table and reference files, a PDF of the characterization, as well as the measure JSON file (JavaScript Object Notation, a text file format used for structured data).

DOWNLOAD MEASURE

Or you can download a PDF of the characterization only, separate from the full Measure Package.

Characterization PDF

Table of Contents

Technology Summary	Electric Savings (kWh)	Measure Case Labor Cost (\$/Unit)
Measure Case Description	Peak Electric Demand Reduction (kW)	Net-to-Gross
Base Case Description	Gas Savings (Therms)	Gross Savings Installation Adjustment (GSIA)
Code Requirements	Life Cycle	Non-Energy Impacts
Program Requirements	Base Case Material Cost (\$/Unit)	DEER Differences Analysis
Program Exclusions	Measure Case Material Cost (\$/Unit)	
Data Collection Requirements	Base Case Labor Cost (\$/Unit)	

Technology Summary

A process boiler is a pressure vessel that transfer heat to water for manufacturing. In most boilers, a heat exchanger separates the combustion products from the water. Boilers can be configured as an integrated packaged boiler, or, in some cases, the boiler (which may resemble an instantaneous water heater) may be connected to a separate tank that contains an internal heat exchanger. An energy efficient unit may have one or more of the following features: forced air burner, relatively large heat exchange surface, and/or economizer to utilize heat recovery from stack gases.

See examples of Measure Characterizations for deemed measures in the eTRM

- **Scope**

- ❑ Boiler system + add-ons (removed pipe insulation)
- ❑ Steam and water systems
- ❑ HVAC and/or process loads
- ❑ Focus on Com, Ind, Ag (not MF)
- ❑ Include Normal Replacement (NR) and Accelerated Replacement (AR); drop New Construction (NC)
- ❑ Initial focus on steam

- **Discussion/Input**

- ❑ Does code for steam boilers apply to Industrial?
- ❑ Existing/recommended tools other than DOE SSMT?

- Scope
 - CHW Plant
 - Framework for different methods/tools/requirements based on measure type and total savings
- Discussion/Input
 - What kinds of custom chiller projects are people developing/submitting?
 - Input/expertise on the following tools:
 - ✦ EnergyPlus modeling
 - ✦ CPUC Chiller Tool
 - ✦ PG&E HVAC Tool
 - ✦ ECAM
 - ✦ UT3
 - ✦ Other(?)

VFD on HVAC Fans

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- **Scope**
 - VFD retrofit on HVAC fans
 - Commercial (and/or Industrial or MF Common areas)
 - Framework for different methods/tools/requirements based on measure type and total savings
- **Discussion/Input**
 - What kinds of custom chiller projects are people developing/submitting?
 - Input/expertise on the following tools:
 - ✦ EnergyPlus modeling
 - ✦ POU VFD Tools
 - ✦ M&V Regression approach (ECAM, UT3)
 - ✦ Other?
 - Potential overlap with RCx

- **Scope**

- Start with most common/simple control measures
 - ✦ Occ/Unocc scheduling; fan/space temperature setbacks
 - ✦ CHW, CW, HHW, SAT, Fan SP resets
- Focus on commercial; w/ process/ind applications in mind
- Option A measure-level approaches for savings (vs. whole building approach)

- **Discussion/input**

- Input on existing tools:
 - ✦ PG&E HVAC Tool
 - ✦ BOA Tool
- Potential overlap with Chillers, VFDs on HVAC Fans

Small HVAC

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- Scope
 - Options Discussed
 - ✦ Control packages for Small Commercial HVAC package unit (a new measure with savings opportunity)
 - ✦ Commercial Packaged HVAC (consistent methods/tool)
 - ✦ Approach for “large” projects made of many small HVAC units
 - Potential focus on defining key data/parameters that can be used across many measures
- Discussion/Input
 - What projects are we missing altogether that would benefit from a Cal TF Custom Measure Package?
 - Scope and measure selection

Pump Overhaul

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- Proposed a Custom Lite (i.e., Hybrid) process for Pump Overhauls. Items requiring further review and discussion:
 - PoE Requirements
 - Verification of Service Equivalency
 - Appropriate M&V
 - Need for CMPA Review

- **Scope**

- **Input on Scope**

- ✦ VFDs for commercial and industrial pump applications
- ✦ Municipal water operations (drinking water distribution, pumping stations, WWTP)
- ✦ DW booster pumps within buildings

- **Discussion/Input**

- **Other key tools?**

- ✦ PG&E Pumps Tool
- ✦ CCT Statewide Tool
- ✦ DOE Pump Tool
- ✦ RTF Tools

General Q&A

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Meeting Wrap-Up & Next Steps

- **Action Items**
 - Measure Groups continue to craft Measure Characterizations and methods
 - Cal TF Staff reach out to stakeholders for projects, tools, and other information

- **Upcoming**
 - Measure Group meetings (ongoing)
 - 11/17 TF Meeting (online, 9am-1pm)
 - 12/7 Custom Subcommittee (1-3pm)