

Cal TF Custom Subcommittee Meeting #4 [draft]



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Agenda & Goals

- **Meeting Agenda**

- 2022 Recap + 2023 Business Plan [10 min]
- eTRM Enhancements for Custom Measures [30 min]
- Roundtable Measure Group Updates [45 min]
- Wrap-up & Action Items [5 min]

- **Meeting Goals**

- Update subcommittee on 2023 Business Plan related to Custom
- Collect input on Phase 1 eTRM enhancements
- Provide updates and collect input on measure-specific methods

2022 Recap + 2023 Outlook

3

2022

- Memo: eTRM for Custom
- Launched Custom Subcommittee
 - Selected custom measures for standardization
 - Developing common approach/tools for selected measures
 - Examining custom tools/methods
- Examine eTRM enhancements for Custom Measures, Projects, Workflows
- Custom Charette

2023

- Regulatory/documentation review
- Custom Subcommittee
 - Custom Measures
 - Standardize Custom Measure ID / Offering ID
- Develop plan to improve approach to summarizing and providing clear CPUC guidance on custom projects
- Custom Roadmap (complete by 2023 Q3)
- Implement eTRM enhancements for Custom Measures
- White Papers (as needed/approved)

See Final 2023 Cal TF Business Plan (Goal 5)

<http://www.caltf.org/what-we-do>

eTRM Options for Custom

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

- **eTRM for Custom**
 - Custom Measures – Information/Resources
 - Custom Measures – Calculations
 - Custom Projects
 - Custom Project Review Workflows
- **Phase 1: eTRM is a repository for custom measure information with external calculators**
 - eTRM measure template – provides clear, consistent guidance on statewide standardized methods & requirements
 - Calculation workbooks and guidance documentation are available to download at measure level
 - Top level custom tools library

eTRM Measure Characterization

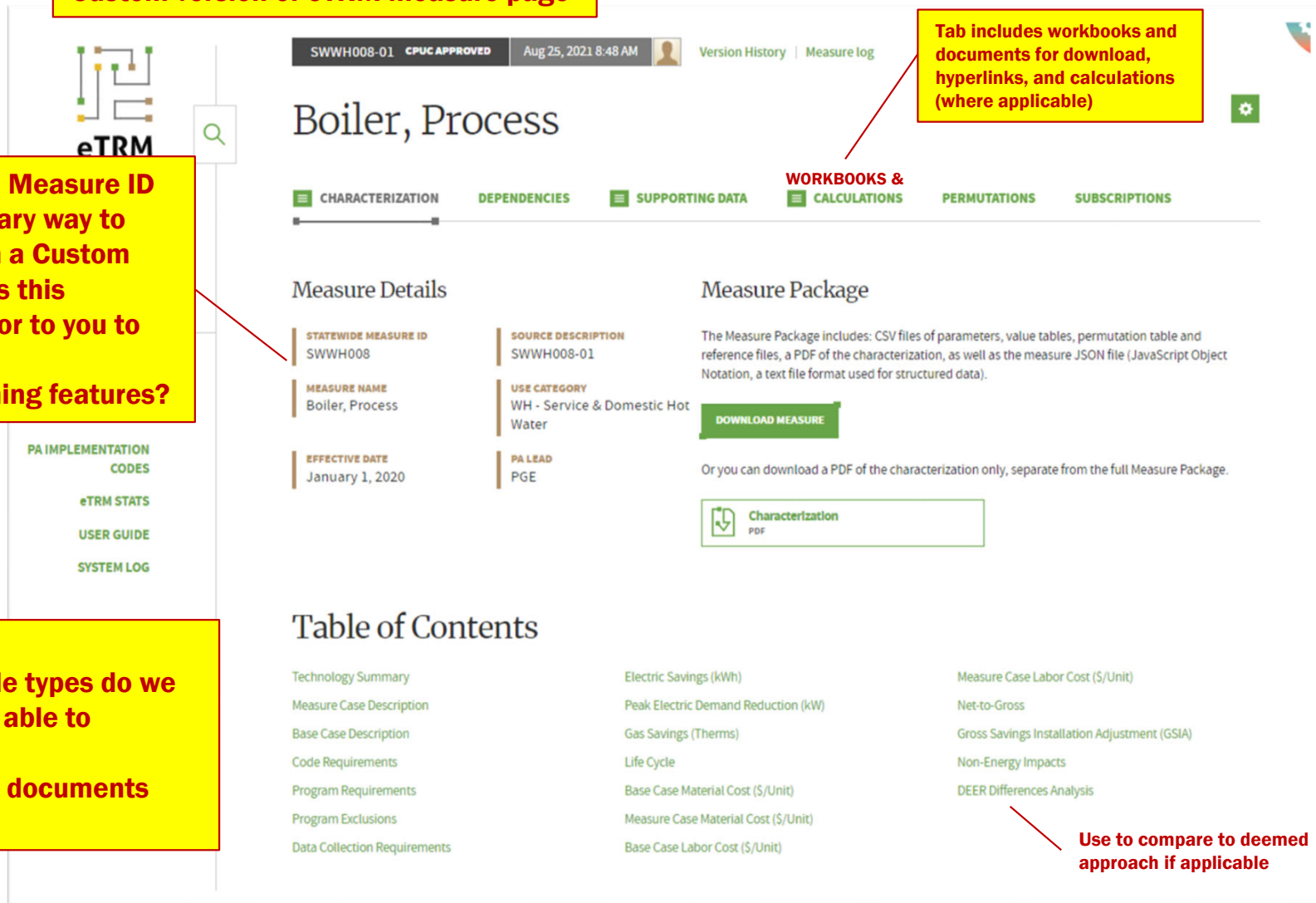
5

Custom version of eTRM measure page

QUESTION: Measure ID is the primary way to distinguish a Custom Measure. Is this sufficient, or to you to want more distinguishing features?

QUESTION: (1) What file types do we want to be able to download? (2) Is three documents sufficient?

Tab includes workbooks and documents for download, hyperlinks, and calculations (where applicable)



The screenshot shows the eTRM interface for a measure titled "Boiler, Process". At the top, it displays the measure ID "SWWH008-01", a "CPUC APPROVED" status, and a timestamp "Aug 25, 2021 8:48 AM". A navigation bar includes "Version History" and "Measure log". The main navigation tabs are "CHARACTERIZATION", "DEPENDENCIES", "SUPPORTING DATA", "WORKBOOKS & CALCULATIONS", "PERMUTATIONS", and "SUBSCRIPTIONS". The "WORKBOOKS & CALCULATIONS" tab is highlighted with a red box and an annotation. The page is divided into two main sections: "Measure Details" and "Measure Package".

Measure Details:

STATEWIDE MEASURE ID SWWH008	SOURCE DESCRIPTION SWWH008-01
MEASURE NAME Boiler, Process	USE CATEGORY WH - Service & Domestic Hot Water
EFFECTIVE DATE January 1, 2020	PA 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

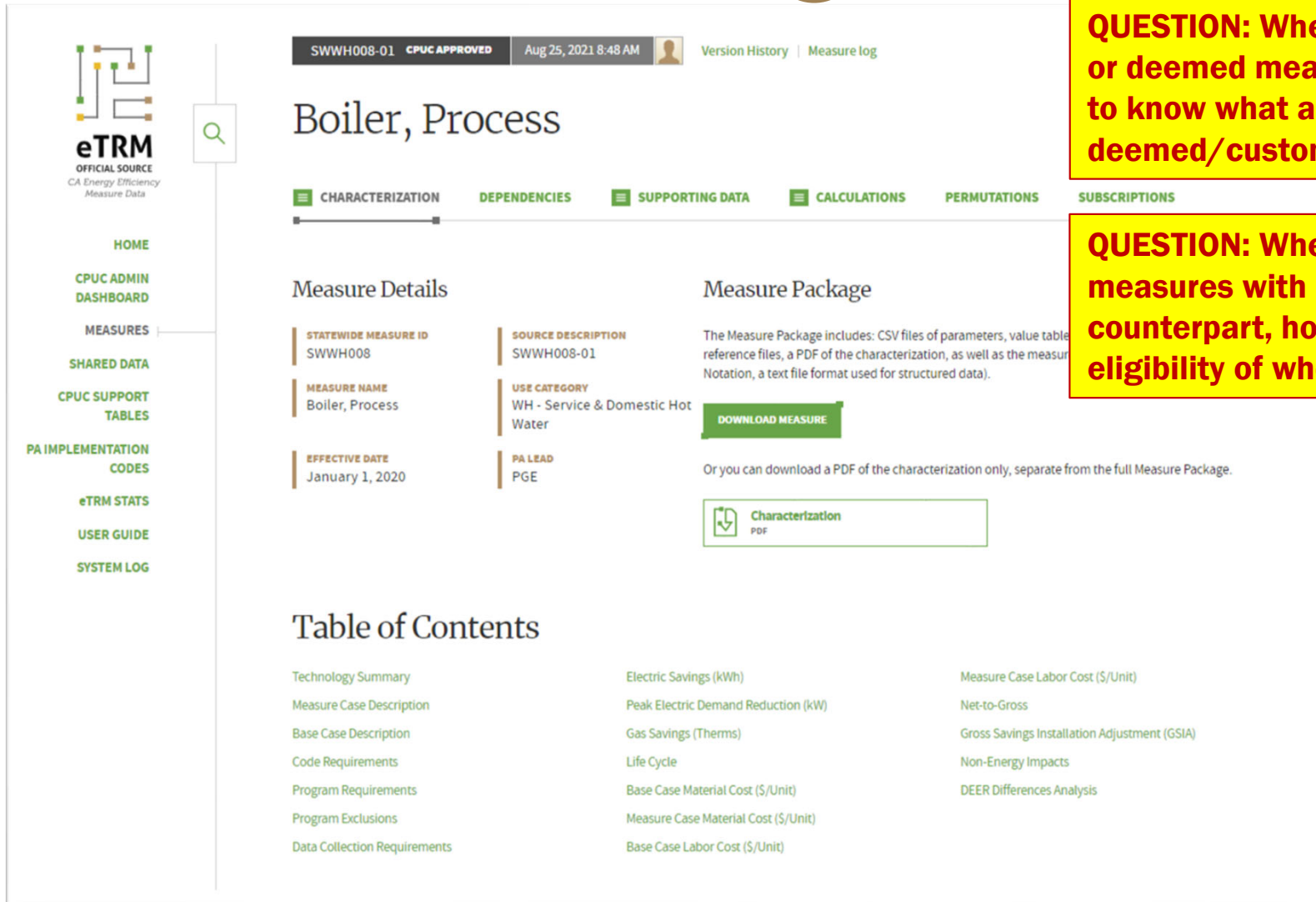
Table of Contents:

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)	

Use to compare to deemed approach if applicable

eTRM Measure Characterization

6



The screenshot shows the eTRM interface for measure SWWH008-01. The page title is "Boiler, Process". The left sidebar contains navigation links: HOME, CPUC ADMIN DASHBOARD, MEASURES, SHARED DATA, CPUC SUPPORT TABLES, PA IMPLEMENTATION CODES, eTRM STATS, USER GUIDE, and SYSTEM LOG. The main content area is divided into "Measure Details" and "Measure Package".

Measure Details:

- STATEWIDE MEASURE ID: SWWH008
- MEASURE NAME: Boiler, Process
- EFFECTIVE DATE: January 1, 2020
- SOURCE DESCRIPTION: SWWH008-01
- USE CATEGORY: WH - Service & Domestic Hot Water
- PA LEAD: PGE

Measure Package:

The Measure Package includes: CSV files of parameters, value table reference files, a PDF of the characterization, as well as the measure Notation, a text file format used for structured data.

Buttons: **DOWNLOAD MEASURE**, **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)
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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)	

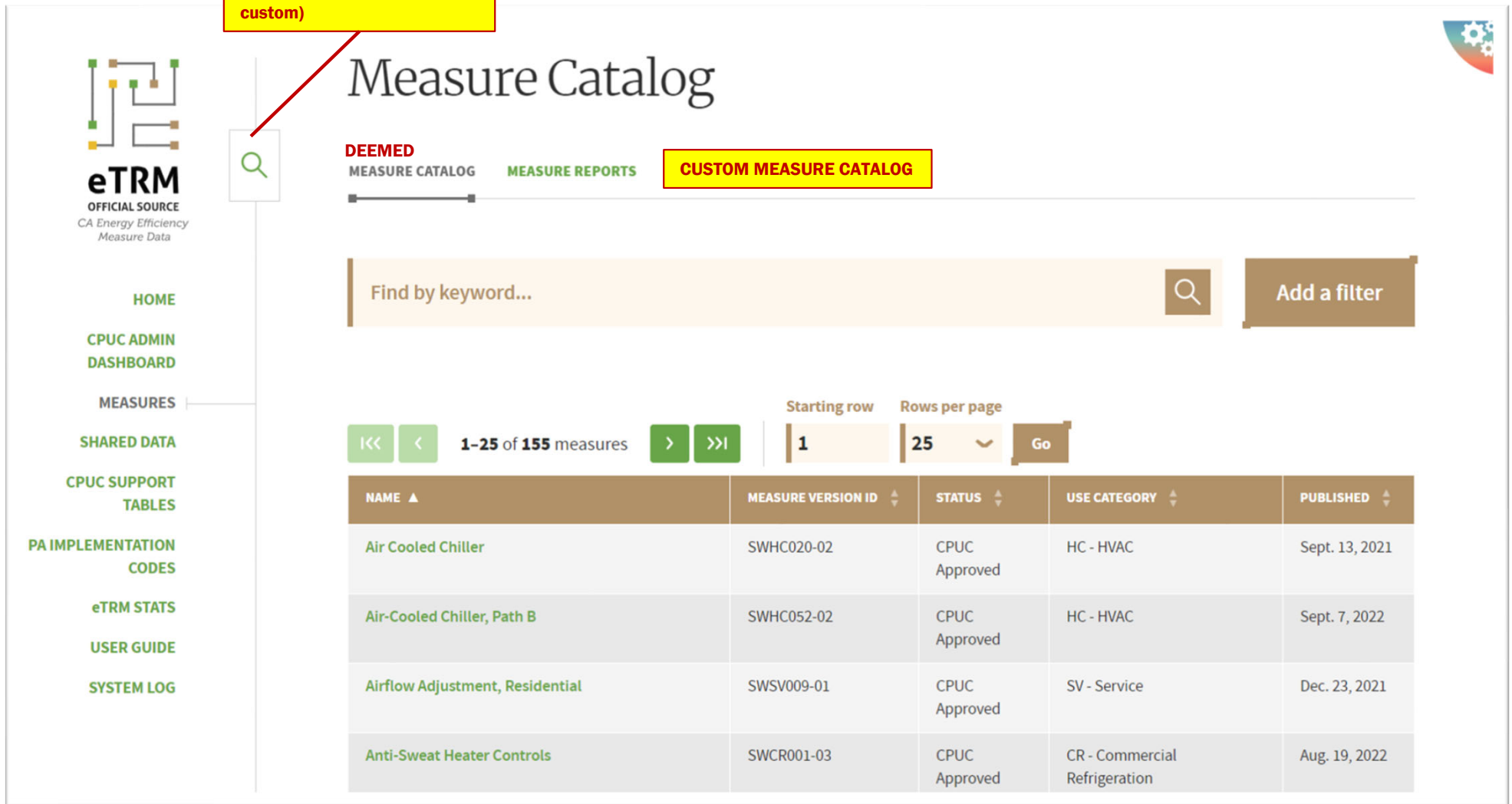
QUESTION: When viewing a custom or deemed measure, do you want to know what are the related deemed/custom measures?

QUESTION: When viewing a custom measures with deemed counterpart, how to list the eligibility of when to use which?

eTRM Measure Catalog

7

Main search feature allows user to search among all measures (deemed and custom)



The screenshot shows the eTRM Measure Catalog interface. On the left is a navigation menu with items: HOME, CPUC ADMIN DASHBOARD, MEASURES, SHARED DATA, CPUC SUPPORT TABLES, PA IMPLEMENTATION CODES, eTRM STATS, USER GUIDE, and SYSTEM LOG. The main content area has a search bar with the text "Find by keyword..." and a search icon. To the right of the search bar is a button labeled "Add a filter". Below the search bar is a table of measures. The table has columns: NAME, MEASURE VERSION ID, STATUS, USE CATEGORY, and PUBLISHED. The table shows 4 rows of data. Above the table is a pagination control showing "1-25 of 155 measures" and "Starting row 1 Rows per page 25".

DEEMED
MEASURE CATALOG MEASURE REPORTS **CUSTOM MEASURE CATALOG**

Find by keyword... Add a filter

1-25 of 155 measures Starting row 1 Rows per page 25 Go

NAME ▲	MEASURE VERSION ID ▲	STATUS ▲	USE CATEGORY ▲	PUBLISHED ▲
Air Cooled Chiller	SWHC020-02	CPUC Approved	HC - HVAC	Sept. 13, 2021
Air-Cooled Chiller, Path B	SWHC052-02	CPUC Approved	HC - HVAC	Sept. 7, 2022
Airflow Adjustment, Residential	SWSV009-01	CPUC Approved	SV - Service	Dec. 23, 2021
Anti-Sweat Heater Controls	SWCR001-03	CPUC Approved	CR - Commercial Refrigeration	Aug. 19, 2022

Searching eTRM Measures

8

QUESTION: In the search list, Deemed and Custom measures would only be distinguished by the measure ID convention. Is this sufficient, or would you like to see deemed/custom separated or more clearly distinguished?



Chiller

6 SEARCH RESULTS

1-6 of 6 search results

SWHC052-02: Air-Cooled Chiller, Path B

... **chiller** (s) to cool and distribute water that is used to cool air to meet building cooling demand. An air-cooled **chiller** rejects heat from the refrigeration cycle to the ambient air using fans (forced convection). Even though an air-cooled **chiller** is less efficient than a water-cooled **chiller**, it provides other advantages: lower first cost, lower maintenance ...

SWHC020-03: Air-Cooled Chiller

... **Chiller** make and model number **Chiller** type **Chiller** rated capacity **Chiller** rated efficiency Quantity of units installed Refrigerant(s) used For NR applications, existing equipment type Itemized invoice to support measure cost The electric unit energy savings (UES) of an air cooled **chiller** were retrieved directly from the Database of Energy Efficient Resources (DEER). UES values were provided for each ...

SWHC005-03: Water-Cooled Chiller

... **chiller** (centrifugal, scroll) **Chiller** rated capacity **Chiller** full load efficiency **Chiller** part load efficiency Refrigerant(s) used Flow control strategy (e.g., variable speed drive) Lead/lag configuration Quantity of sales (upstream) or units installed (downstream) Itemized invoice to support measure cost Building type and vintage For NR applications, existing equipment type Individual participation contract information to include: business name, first ...

SWHC008-01: Variable Speed Drive for a Central Plant System

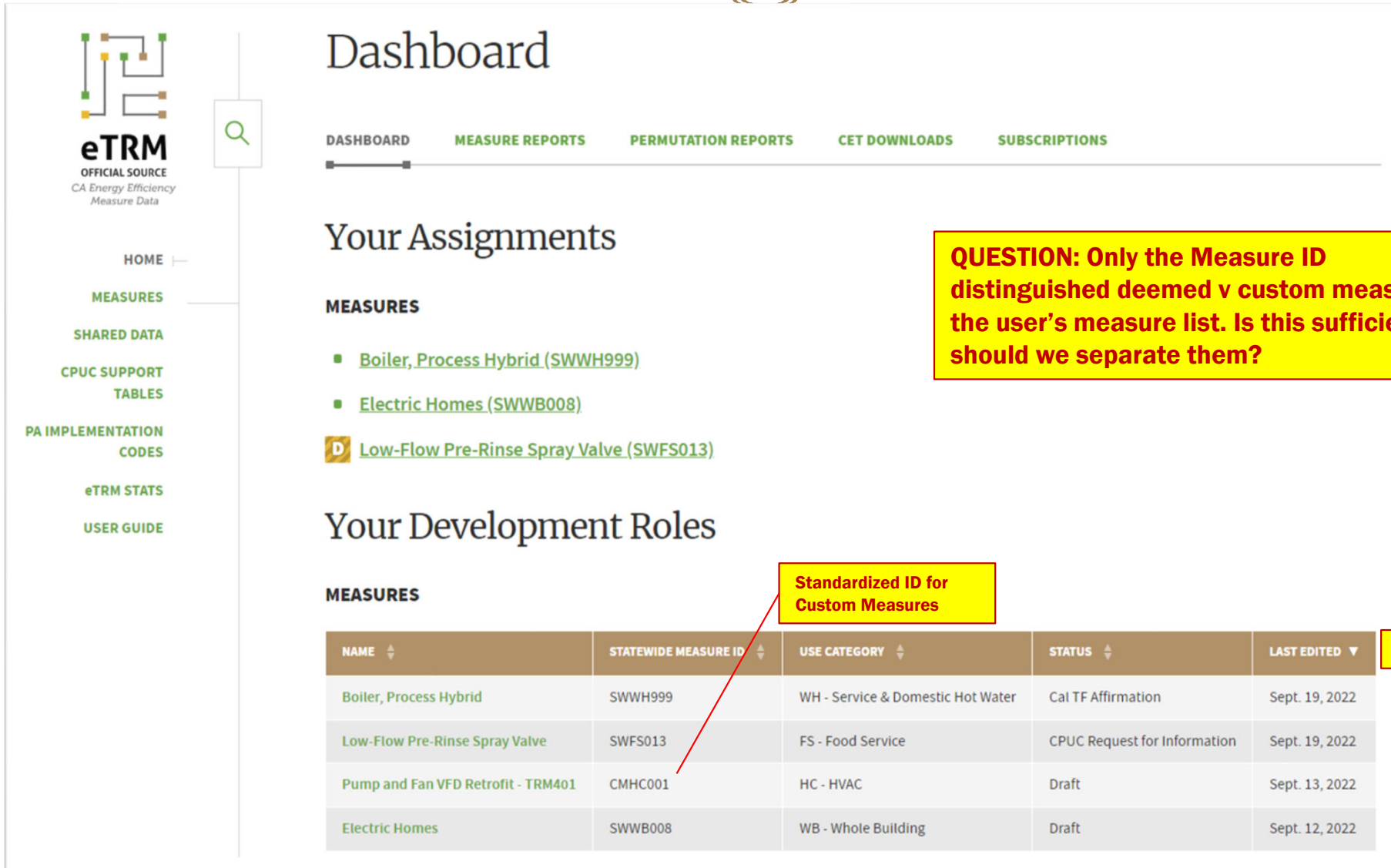
... **chiller** and circulating this chilled water through a chilled water coil in an air handler or throughout the building zones. A **chiller** is either air-cooled or water-cooled; in a water-cooled **chiller** a separate water loop absorbs heat from the **chiller** which is then rejected by a cooling tower. A significant amount of energy is required for the ...

SWHC014-03: Unitary Air-Cooled Air Conditioner or Heat Pump, Under 65 kBtu/hr, Commercial

... **chiller** serves most or all of the building. A unitary system uses direct expansion (DX), is typically factory designed, and is available as a packaged or split system for commercial use. A split system consists of an indoor unit (fan, cooling coil, heating elements, filter) connected by refrigerant piping to an outdoor unit (fan, compressor, condenser, expansion valve). A packaged ...

eTRM Dashboard

9



The screenshot shows the eTRM dashboard with a sidebar on the left containing navigation links: HOME, MEASURES, SHARED DATA, CPUC SUPPORT TABLES, PA IMPLEMENTATION CODES, eTRM STATS, and USER GUIDE. The main content area has a top navigation bar with DASHBOARD (selected), MEASURE REPORTS, PERMUTATION REPORTS, CET DOWNLOADS, and SUBSCRIPTIONS. Below this is a 'Your Assignments' section with a 'MEASURES' heading and a list of three items: 'Boiler, Process Hybrid (SWWH999)', 'Electric Homes (SWWB008)', and 'Low-Flow Pre-Rinse Spray Valve (SWFS013)'. The 'Low-Flow Pre-Rinse Spray Valve' item is highlighted with a yellow box and a red arrow pointing to a yellow callout box that says 'Standardized ID for Custom Measures'. Below this is a 'Your Development Roles' section with a 'MEASURES' heading and a table. The table has five columns: NAME, STATEWIDE MEASURE ID, USE CATEGORY, STATUS, and LAST EDITED. A yellow callout box labeled 'Measure Type' points to a column of red text labels: 'Deemed', 'Deemed', 'Custom', and 'Deemed'.

QUESTION: Only the Measure ID distinguished deemed v custom measures in the user's measure list. Is this sufficient, or should we separate them?

Standardized ID for Custom Measures

MEASURES

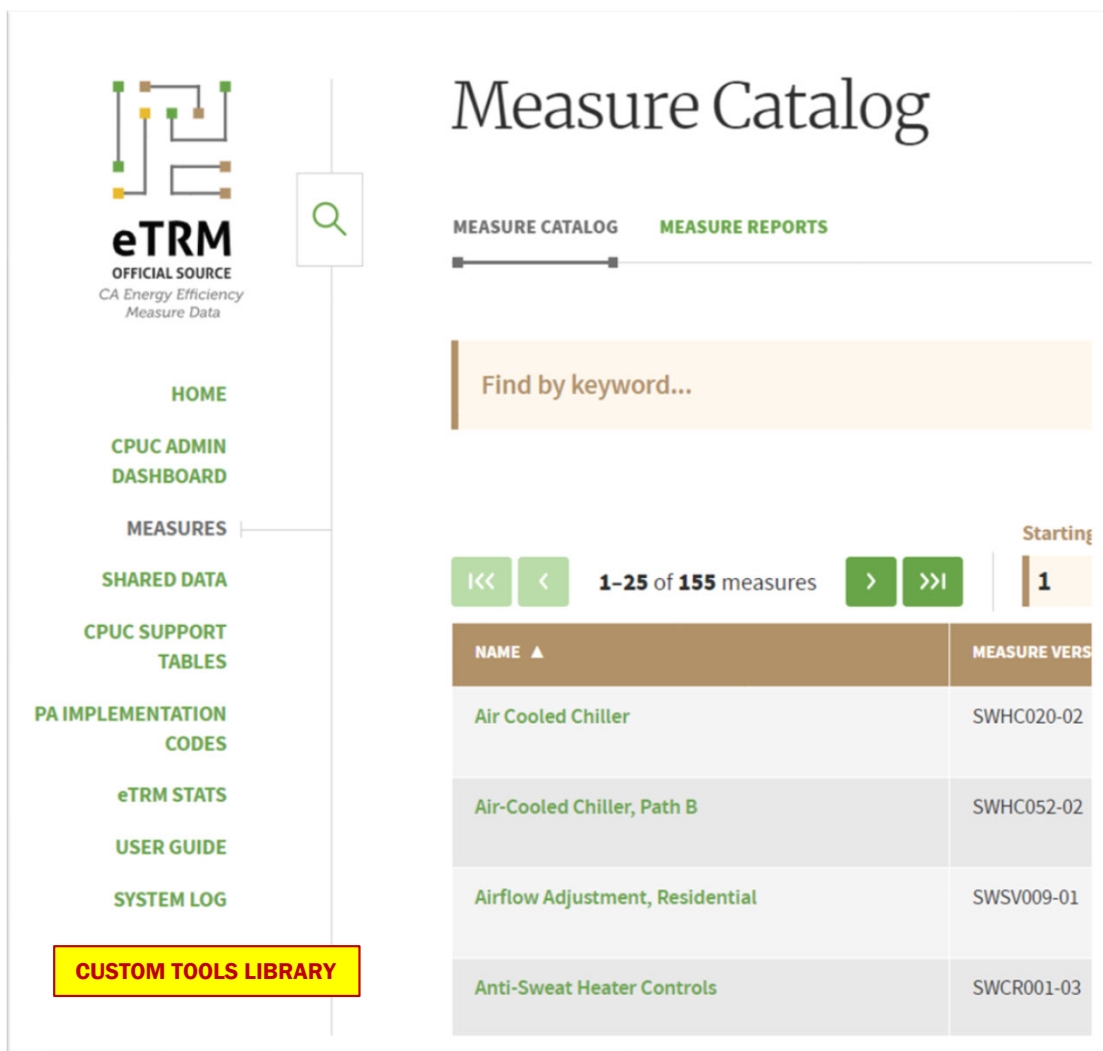
NAME	STATEWIDE MEASURE ID	USE CATEGORY	STATUS	LAST EDITED
Boiler, Process Hybrid	SWWH999	WH - Service & Domestic Hot Water	Cal TF Affirmation	Sept. 19, 2022
Low-Flow Pre-Rinse Spray Valve	SWFS013	FS - Food Service	CPUC Request for Information	Sept. 19, 2022
Pump and Fan VFD Retrofit - TRM401	CMHC001	HC - HVAC	Draft	Sept. 13, 2022
Electric Homes	SWWB008	WB - Whole Building	Draft	Sept. 12, 2022

Measure Type

Deemed
Deemed
Custom
Deemed

eTRM Custom Library

10



The screenshot shows the eTRM Measure Catalog interface. On the left is a navigation menu with items: HOME, CPUC ADMIN DASHBOARD, MEASURES, SHARED DATA, CPUC SUPPORT TABLES, PA IMPLEMENTATION CODES, eTRM STATS, USER GUIDE, and SYSTEM LOG. A yellow box labeled 'CUSTOM TOOLS LIBRARY' is positioned at the bottom of the menu. The main content area is titled 'Measure Catalog' and has two tabs: 'MEASURE CATALOG' (selected) and 'MEASURE REPORTS'. Below the tabs is a search bar with the placeholder text 'Find by keyword...'. A pagination bar shows '1-25 of 155 measures' and 'Starting 1'. Below this is a table with two columns: 'NAME ▲' and 'MEASURE VERS'. The table contains the following data:

NAME ▲	MEASURE VERS
Air Cooled Chiller	SWHC020-02
Air-Cooled Chiller, Path B	SWHC052-02
Airflow Adjustment, Residential	SWSV009-01
Anti-Sweat Heater Controls	SWCR001-03

QUESTION: Should the library be more of a Reference Library (materials not connected to a measure) or a Shared Data Library (linked to measure materials)?

QUESTION: What files types and materials should be included in this Custom Library?

Other eTRM Questions

11

- Is it OK to exclude custom measures from the:
 - PA workspace
 - API
 - Public database

- Questions/Discussion

eTRM for Custom Measures

12

- Next Steps

- 12/8 – Post eTRM Functional Requirements for review
- Develop eTRM Phase 1 mockups
- 12/20 – Present/discuss design w/ eTRM Development group
- Continue exploration of eTRM Phase 2+ (calculations, projects, and workflow) in the Custom Roadmap

Custom Measures

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

- Measure-Specific Discussions
 - Boiler+
 - Pumps + Pump Overhaul
 - RCX
 - Small HVAC
 - Chillers
 - VFD on HVAC Fan

General Notes/Resources

14

- Draft M&V Guidelines for Small Measures/Projects (from CPUC Small Projects subgroup)
 - SharePoint > [Resource Library](#)
- Recording of PG&E HVAC Tool demo/discussion
 - SharePoint > [Resource Library](#)
- Discussion Points
 - Approach for ongoing management/updates of statewide tools

- Scope

- Boiler system + add-ons; initial focus on steam
- HVAC and/or process loads for Com, Ind, Ag
- Normal Replacement (NR) and Accelerated Replacement (AR)

- Upcoming

- Review DOE MEASUR Tool
- Review draft M&V guidance

Pumps + Pump Overhaul

16

- Update

- Pump Overhaul Hybrid – parsing comments from CPUC
- Pumps – reviewing tools, may recommend based on rigor:
 - ✦ Hydraulic Institute (HI) Tool
 - ✦ DOE Pumping System Assessment Tool (PSAT)
 - ✦ PG&E Pump Tool

- Discussion/Input

- Pumps – Proposed Pump/VFD/Controls workpaper
- Stakeholder experience with pump tools

- Scope

- Common RCx measures within PG&E HVAC Tool
- Focus on commercial; w/ process/Ind applications in mind

- Upcoming

- Measure-level review of PG&E HVAC Tool
- M&V requirements and rigor level

Small HVAC

18

- Scope

- Add-on control package for packaged/split HVAC unit

- Discussion/Input

- Specific companies/products with advanced controls for small HVAC units (e.g., “Gridpoint”)
- Market value/interest/potential for this type of measure
- Prevalence/examples of past or current custom projects

- Scope

- CHW Plant (for HVAC and/or process loads)
- Framework for different methods/tools/requirements based on measure type and total savings
- Examining: PG&E HVAC Tool, CPUC Chiller Tool

- Discussion/Input

- What kinds of custom chiller projects should we plan for?

VFD on HVAC Fans

20

- Scope
 - VFD as add-on equipment for HVAC applications
 - Commercial (and/or Industrial or MF Common areas)
 - Primary focus on SF/RF; secondary focus on CT/EF
- Discussion/Input
 - What kinds of VFD on HVAC fans should we plan for?

Meeting Wrap-Up & Next Steps

- **Action Items**
 - Measure Groups continue to craft Measure Characterizations and methods
 - Optional review of Functional Requirements

- **Upcoming**
 - Measure Group meetings
 - ✦ 12/8 at 1pm – RCx
 - ✦ 12/8 at 2pm – Small HVAC
 - ✦ 12/9 at 1pm – Boilers
 - ✦ 12/12 at 3pm – Pumps
 - ✦ 12/19 at 9am – Chillers
 - ✦ 12/19 at 10am – VFD
 - 12/15 TF Meeting
 - ✦ San Diego, 10am to 4:30pm