

# Cal TF – PAC Meeting



**CALIFORNIA**  
TECHNICAL FORUM

**JUNE 21, 2022**  
**ANNETTE BEITEL**  
**AYAD AL-SHAIKH**  
**ARLIS REYNOLDS**

# Agenda

2

- Leveraging the eTRM for Custom Projects
  - Continued discussion on how existing eTRM tools/processes can be used to standardize and streamline custom projects

June  
8

Introduce  
concept

June  
21

eTRM  
capabilities  
and benefits

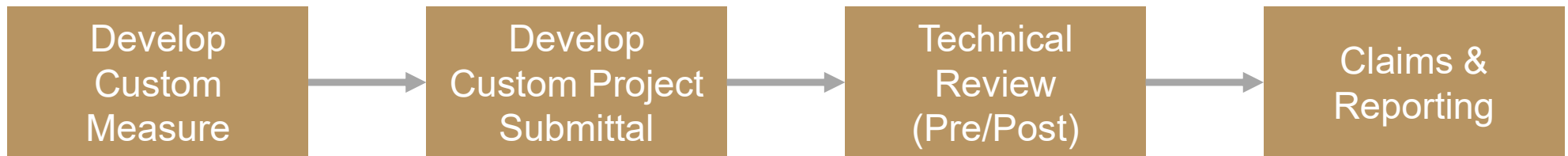
July  
TBD

Long term  
vision and  
roadmap

PAC and stakeholder input

# eTRM Benefits for Custom

3



Cost Savings



Time Savings



Customer Experience



Standardization



Transparency



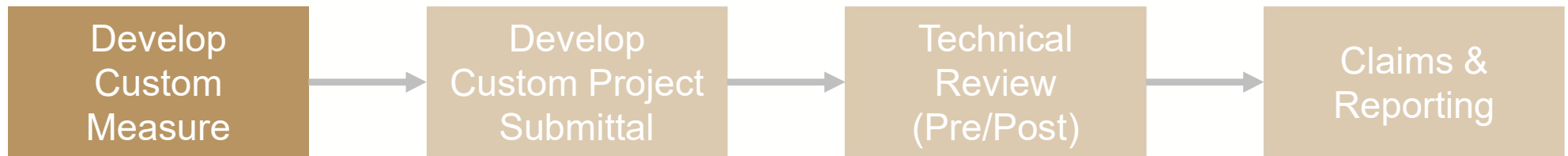
Stakeholder Engagement

# Stage: Custom Measure

4

Different methods and tools for similar measures

Nonstandard documentation difficult to navigate and review



Library of approved tools for semi-deemed measures

Standard savings template for custom measures

**eTRM Measure Package**



# Improving Project Submittal Quality

# Develop Custom Measures



5

SWWH005-04 CPUC APPROVED Jan 18, 2022 11:10 AM
Version History

## Boiler, Commercial

CHARACTERIZATION
DEPENDENCIES
SUPPORTING DATA
CALCULATIONS
PERMUTATIONS
SUBSCRIPTIONS

### Measure Details

<p><b>STATEWIDE MEASURE ID</b> SWWH005</p> <p><b>MEASURE NAME</b> Boiler, Commercial</p> <p><b>EFFECTIVE DATE</b> January 1, 2021</p>	<p><b>SOURCE DESCRIPTION</b> SWWH005-04</p> <p><b>USE CATEGORY</b> WH - Service &amp; Domestic Hot Water</p> <p><b>PA LEAD</b> SCG</p>
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### 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 commercial hot water boiler is a pressure vessel that transfers heat to water. In most boilers, a heat exchanger separates the combustion products from the water. A boiler can be configured as an integrated packaged boiler, or, in some cases, may be connected to a separate tank that contains an internal heat exchanger. The California Appliance Efficiency Regulations (Title 20) and Building Energy Efficiency Standards (Title 24) define an instantaneous water heater as "a water heater that has an input rating of at least 4,000 Btu per hour per gallon of stored water." 63370 62330 Commercial domestic hot water boilers are included within this definition.

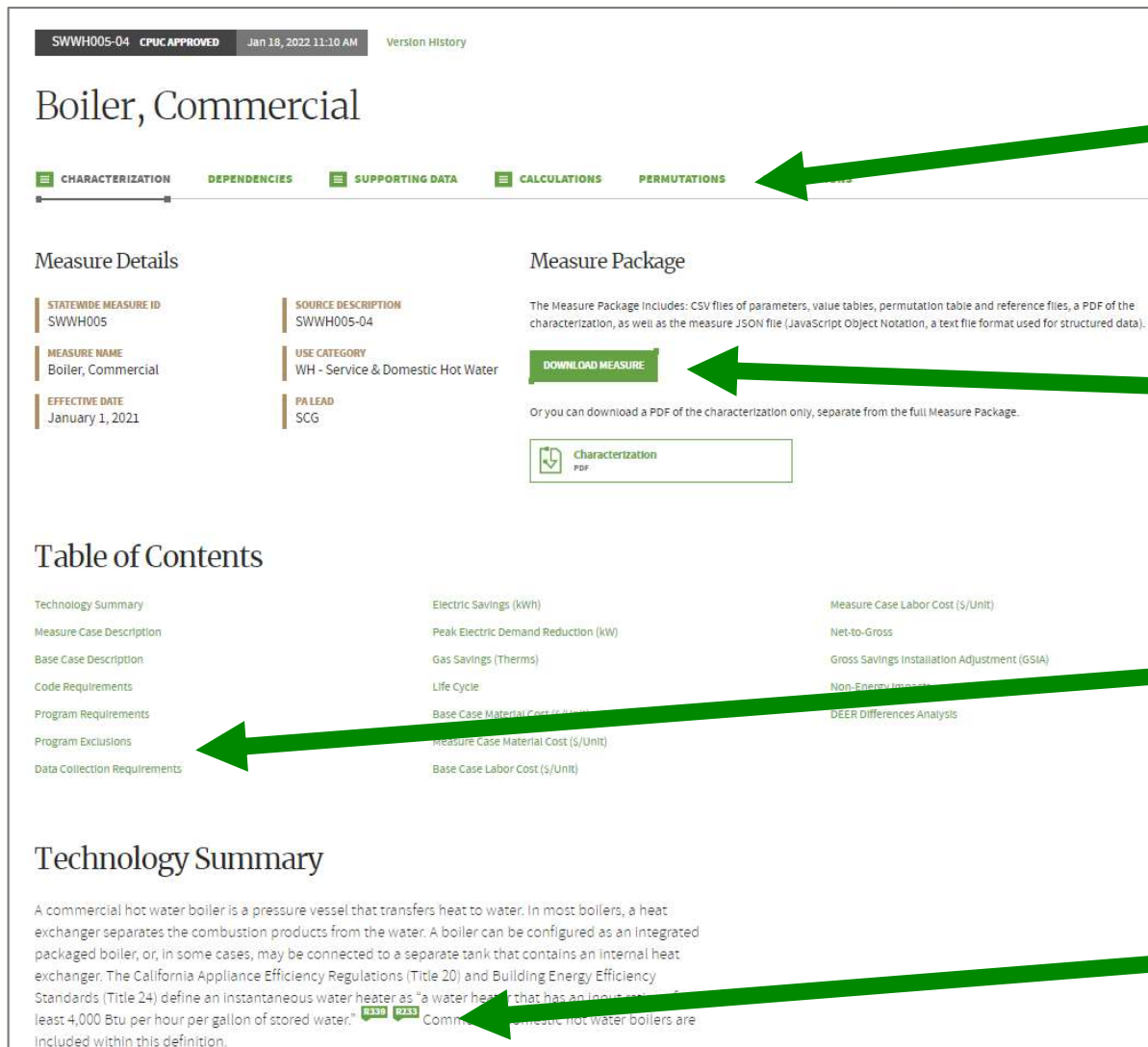
eTRM template  
can readily  
accommodate  
semi-deemed  
measure  
characterization



# Improving Project Submittal Quality

## Develop Custom Measures

6



**Boiler, Commercial**

SWWH005-04 CPUC APPROVED Jan 18, 2022 11:10 AM Version History

**CHARACTERIZATION** DEPENDENCIES SUPPORTING DATA CALCULATIONS PERMUTATIONS

**Measure Details**

- STATEWIDE MEASURE ID: SWWH005
- SOURCE DESCRIPTION: SWWH005-04
- MEASURE NAME: Boiler, Commercial
- USE CATEGORY: WH - Service & Domestic Hot Water
- EFFECTIVE DATE: January 1, 2021
- PA LEAD: SCG

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Future potential to perform calculations directly in eTRM

Direct download of appropriate version of approved calculator (populated with default values)

Characterization includes defined data and M&V requirements.

Embedded references to key documents

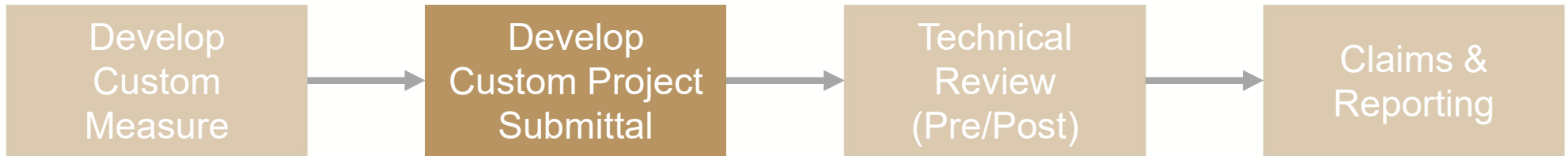
# Stages: Project Package

7

Incomplete project package

Nonstandard formatting

Large number of supporting documents



Complete, consistent, organized project packages

Reduced documentation requirements for semi-deemed

**eTRM Measure Package Template**



# Custom Project Packages


8

**Project Feasibility Study**

Customer Name  
Address Street  
City, CA 92867

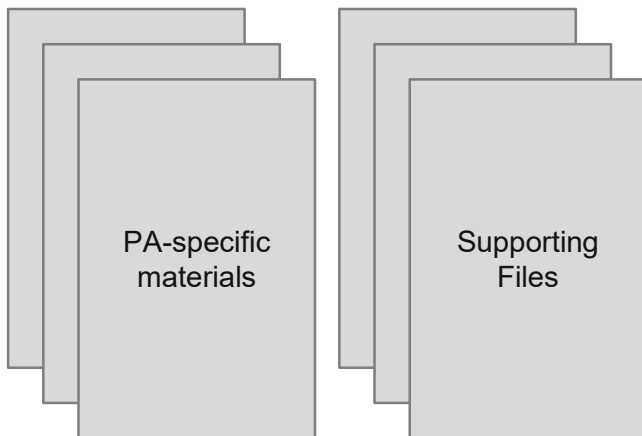
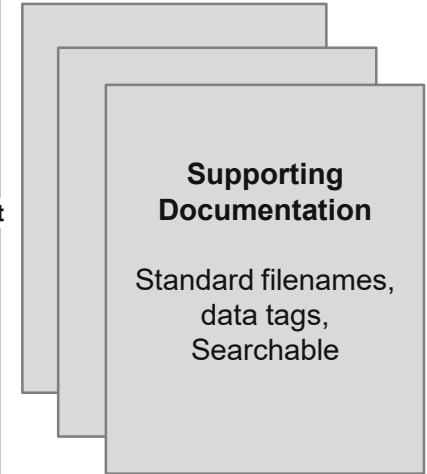
Project Title – Project #

**Prepared by:**  
Implementer/Developer Name  
Address City, CA 95403  
Primary Contact Name  
Email  
Phone: xxx-xxx-xxxx

  
California  
Statewide  
Deemed  
Measures  
eTRM  
best in class

**Statewide Custom Project  
Characterization Template**

**VERSION 2.0**  
Last Updated April 30, 2021



Data validation for completeness and QA/QC

Project Data Fields  
Pre-populated templates for  
reviews and disposition reports





# Custom Project Packages

9

## Base Case Material Cost (\$/Unit)

The material cost data for baseline and measure case air-cooled chillers was gathered from two equipment manufacturers who also participate in Upstream HVAC program. This data was collected in October - November 2020 and includes the average equipment cost per ton for the two capacity ranges and three efficiency tiers (baseline, Tier 1 and Tier 2). The average of the two manufactures cost was used as the average equipment cost. See the cost calculation <sup>R1397</sup> for details.

## References

- <sup>R103</sup> Itron, Inc. 2011. *DEER Database 2011 Update Documentation*. Prepared for the California Public Utilities Commission. [Download](#) (PDF, 2.6 MB)
- <sup>R104</sup> California Public Utilities Commission (CPUC), Energy Division. 2003. *Energy Efficiency Policy Manual v 2.0*. [Download](#) (PDF, 159.0 KB)
- <sup>R105</sup> California Public Utilities Commission (CPUC), Energy Division. 2013. *Energy Efficiency Policy Manual Version 5*. [Download](#) (PDF, 1.3 MB)
- <sup>R1397</sup> Southern California Edison (SCE). 2020. "SWHC020-02 Air-Cooled Chiller-Cost Calculations.xlsx." [Download](#) (XLSX, 21.4 KB)

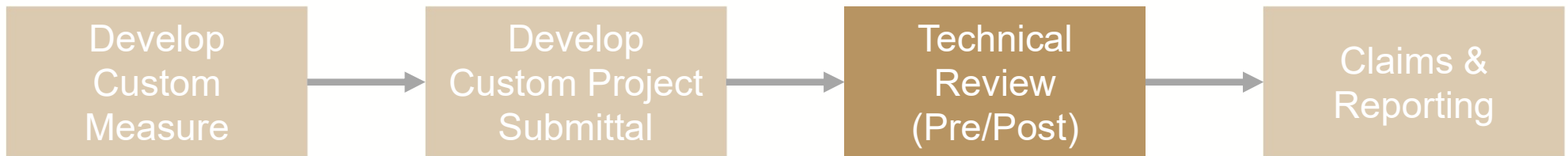
Reference tags in project materials connect to source documentation



# Stage: Technical Review

10

Different process for each PA  
Back-and-forth communication  
Manual tracking  
Limited transparency



Clear, consistent, structured reviews  
Transparent status and history  
Automated tracking and reporting

**Measure Package Review**



# Review Comments

## Table of Contents


Technology Summary <b>2</b>	Electric Savings (kWh) <b>1</b>	Measure Case Labor Cost (\$/Unit)
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Due to hot water efficiency circula without instant circula pump.

### COMMENTS

 **CPUC Administrator**  
Feb 1, 2022 3:56 PM  
Open comment from CPUC

### Measure Log Entry for Boiler, Commercial


 **Kerri-Ann Richard, CPUC Administrator** on Feb 4, 2022 9:42 AM  
**Characterization review comment**

Comment left on [SWWH005-03-2](#), in reference to:  
**"ADDRESSED COMMENT HERE"**

type here

1 reply



 Feb 4, 2022 9:40 AM  
**Kerri-Ann Richard - CPUC Administrator**  
We need more data.

 [REPLY](#)  [COPY LINK](#)

[FULL MEASURE LOG](#)

 **Unresolved** | [Mark resolved](#)

#### LOG ENTRY DETAILS

VERSION AT TIME OF ENTRY  
[SWWH005-03-2](#)

STATUS AT TIME OF ENTRY  
CPUC Request for Information

#### CURRENT MEASURE DETAILS

VERSION  
**D** [SWWH005-draft](#) | [Version History](#)

STATUS  
CPUC Request for Information

CURRENT STATUS AS OF  
Feb 1, 2022 3:57 PM

Reviewer  
comments and  
responses are  
systematically  
tracked



# Communication Log

12

CREATE LOG ENTRY

Boiler, Commercial

LOG ENTRY TYPE\*

Announcement

Choose one

- General
- Request for information
- Reply to request for information
- Request for feedback/comments
- Reply to request for comments
- Measure package plan / request for CPUC early feedback
- Measure reviewer comments
- Announcement

LOG ENTRY TYPE\*

Announcement

Choose one

- General
- Request for information
- Reply to request for information
- Request for feedback/comments
- Reply to request for comments
- Measure package plan / request for CPUC early feedback
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- Announcement

ATTACHMENTS

Drag files here, or Upload from computer

Allowed file formats are: .doc, .docx, .pdf, .xls, .xlsx, .ppt, .pptx, .zip, .png, .jpg, .jpeg, .gif, .txt, .csv

TIME SPENT

VISIBILITY\*

Open

Open

- Private to CPUC roles
- Private to Non-CPUC measure development roles

Add entry Cancel

eTRM tracks and stores stakeholder communication throughout review



# Review Status

13

CHANGE MEASURE STATUS

## Boiler, Commercial

CURRENT MEASURE STATUS  
CPUC Request for Information

NEW MEASURE STATUS\*

IOU Responding to Request

MESSAGE\*

**B I** [Rich Text Editor Icons] Format [Source]

ATTACHMENTS

Drag files here, or Upload from computer

Allowed file formats are: .doc, .docx, .pdf, .xls, .xlsx, .ppt, .pptx, .zip, .png, .jpg, .jpeg, .gif, .txt, .csv

TIME SPENT

Change status Cancel

NEW MEASURE STATUS\*

IOU Responding to Request

- IOU Responding to Request
- CPUC Review
- CPUC SME Review
- CPUC SME Review Complete
- CPUC Staff Review
- CPUC Approved
- CPUC Rejected

**eTRM tracks status, comments, and additional documentation throughout review**



# Status and Review History

14

## Measure Log for Boiler, Commercial

Navigation: << NEWER 1-25 of 57 log entries OLDER >>

- May 10, 2022 3:50 PM**  
SWWH005-03-2  
**Assignment taken**  
Ayad Al-Shaikh — System Administrator  
Ayad Al-Shaikh took assignment of measure B  
SWWH005-03-2
- Feb 4, 2022 9:44 AM**  
SWWH005-03-2  
**Characterization review comment**  
Kerri-Ann Richard — CPUC Administrator  
Why not applicable  
1 reply
- Feb 4, 2022 9:42 AM**  
SWWH005-03-2  
**Characterization review comment**  
Kerri-Ann Richard — CPUC Administrator  
type here  
1 reply
- Feb 4, 2022 9:41 AM**  
SWWH005-03-2  
**Characterization review comment**  
Kerri-Ann Richard — CPUC Administrator  
Need a reference.  
1 reply
- Feb 1, 2022 3:57 PM**  
SWWH005-03-2  
**Changed measure status**  
CPUC Administrator — CPUC Administrator  
test  
**CPUC REQUEST FOR INFORMATION**
- Feb 1, 2022 3:57 PM**  
SWWH005-03-2  
**Changed measure status**  
CPUC Administrator — CPUC Administrator  
test  
**CPUC REVIEW**

### CURRENT MEASURE DETAILS

**VERSION**  
D SWWH005-draft [Version History](#)

**STATUS**  
CPUC Request for Information

**CURRENT STATUS AS OF**  
Feb 1, 2022 3:57 PM

**ADD ENTRY** **CHANGE STATUS**

### FILTER LOG ENTRIES

**Add a filter**

eTRM shows  
current status  
review history

Timestamps can  
be used to track  
and enforce  
review periods



# Notifications

15



**eTRM**  
OFFICIAL SOURCE  
CA Energy Efficiency  
Measure Data

Dan Pidgeon, CPUC Administrator — Jun 17, 2022 6:47 AM  
Low-Temperature Display Case Doors With No Anti-Sweat Heaters (SWCR002-02-5)

## Changed measure status

Changed measure status

**CPUC STAFF REVIEW** → **CPUC REQUEST FOR INFORMATION**

CPUC Request for Information. Please find comments to address in the measure log. Don't hesitate to reach out if you have any questions.

**Measure status at time of entry:**  
CPUC Request for Information

You are receiving this email because your role in eTRM is System Administrator or CPUC Administrator. You may not unsubscribe from this notification.

Email  
notifications  
keep users  
informed



# User Dashboards

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## CPUC Administrator Dashboard

### Status Reports

[Measure Log Activity Report](#)

[Measure Package Review Summary Report](#)

[CPUC Review Assignment Report](#)

[Measure Package Plan Submittals](#)

[CPUC Review Status Report](#)

### Measures Under Review

Number of days since measure version was last submitted or resubmitted to the CPUC for review.

#### LESS THAN 7 DAYS

[SWLG009-02-11](#)

LED, Tube

[SWLG018-01-12](#)

LED, Tube, Type B and Type C

[SWFS006-01-7](#)

Ice Machine, Commercial

[SWHC052-00-8](#)

Air-Cooled Chiller, Path B

#### 7 TO 15 DAYS

[SWHC001-02-5](#)

Wall Furnace, Residential

[SWFS021-02-5](#)

Fryer, Commercial, Fuel Subst...

[SWFS022-01-5](#)

Convection Oven, Commercial, ...

[SWCR005-02-5](#)

Auto Closer for Refrigerated ...

[SWCR004-01-7](#)

ECM Retrofit for a Walk-in Co...

*(21 total measures in this bucket)*

#### 15 TO 30 DAYS

[SWAP008-01-4](#)

Room Air Cleaner, Residential

[SWCR018-02-3](#)

Reach-In Refrigerator or Free...

[SWAP006-01-6](#)

Dishwasher, Residential

[SWSV005-01-4](#)

Economizer Repair, Commercial

[SWSV010-01-2](#)

Economizer Controls, Commerci...

*(26 total measures in this bucket)*

#### 30 TO 60 DAYS

[SWRE003-00-14](#)

Heater for Pool or Spa, Comme...

[SWAP015-draft](#)

Induction Cooking with or wit...

[SWAP003-03-2](#)

Clothes Dryer, Residential

[SWCR020-draft](#)

Medium-Temperature Open Displ...

[SWHC048-02-3](#)

Packaged Air Conditioner Heat...

*(16 total measures in this bucket)*

#### 60 DAYS OR MORE

[SWWH004-02-3](#)

Laminar Flow Restrictor, Comm...

[SWWH019-03-3](#)

Faucet Aerator, Commercial

[SWFS002-draft](#)

Door-Type Dishwasher, Commerc...

[SWFS013-01-4](#)

Low-Flow Pre-Rinse Spray Valve

[SWWH020-03-4](#)

Low-Flow Showerhead, Commerci...

*(13 total measures in this bucket)*

Additional measures under review can be viewed in the [CPUC Review Status Report](#)

User  
dashboard  
shows  
review  
activity





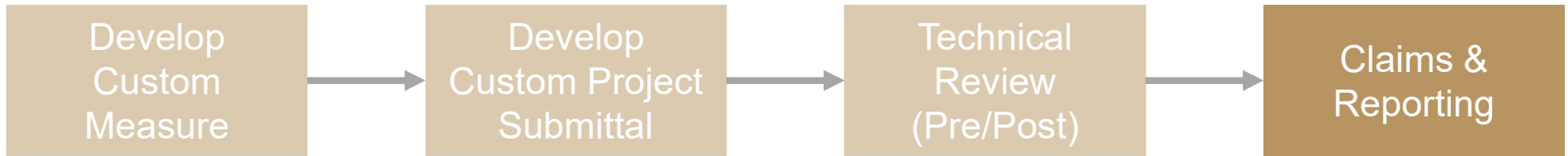
# Stages: Claims and Reporting

17

Different names/codes for similar measures

Project data in different systems

Project data not readily available for ex post analysis



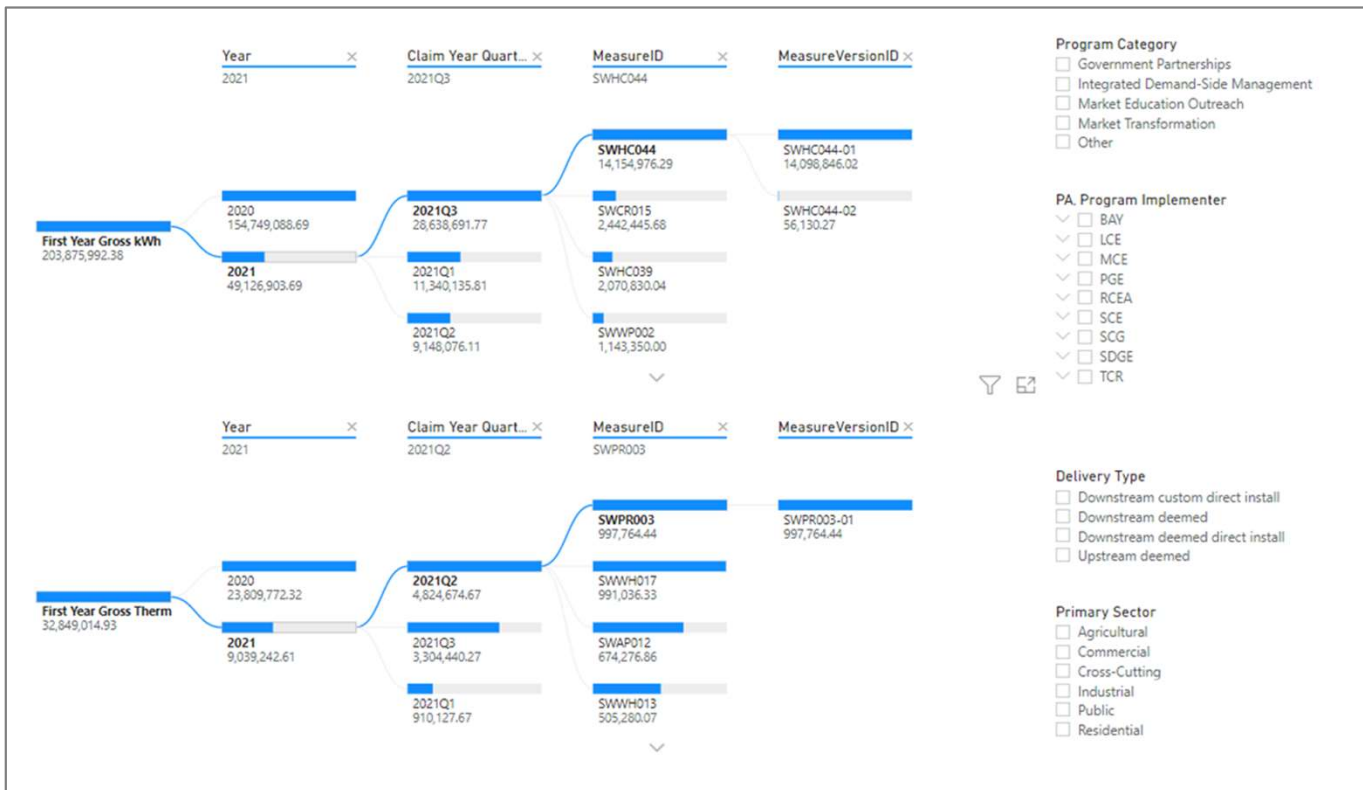
Data housed and organized in central location

Accessible and tagged data for reporting and analytics

**eTRM database and reporting tools**



# Reporting & Analytics



Aggregated data and common nomenclature improves reporting and analytics



# Integrations

19

YOUR PERSONAL API KEY

Generate key

*Generate a unique API key to enable consumption of eTRM data in external applications.*

## CET Integration

eTRM allows users to download measure files for analysis in the CEDARS Cost Effectiveness Tool (CET). The CET output may be uploaded into the measure permutations.

DOWNLOAD CET INPUT FILE (ZIP)

**Automate data transfers and data structures enable integration with other data systems**



# User-Friendly Interface

20

- User dashboards
- Enhanced search functions
- Customizable reports and subscriptions
- Alignment with deemed


**eTRM user interface  
was designed by  
user-stakeholders**



# Differential Access

NAME\*  
Arlis Reynolds

EMAIL\*  
arlis.reynolds@futee.biz

AVATAR  
  
Change Remove

*For best results, use a photo with your face clearly visible*

ORGANIZATION  
FuteE

SYSTEM ROLE\*  
System Administrator

PROGRAM ADMINISTRATOR ASSOCIATION  
-----  
PG&E  
SCE  
SCG  
SDG&E  
LADWP  
SMUD

SYSTEM ROLE\*  
System Administrator  
Base User  
CPUC Administrator  
System Administrator

PROGRAM ADMINISTRATOR ASSOCIATION  
-----  
PG&E  
SCE  
SCG  
SDG&E  
LADWP  
SMUD

User types, roles, affiliations, and assignments control users access to data and functions



# Next Steps for Cal TF

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- Ongoing Stakeholder Input: Continue to solicit input/comment from key stakeholders to develop/refine
  - White Paper(s)
  - Graphical models
  - Identify value and barriers/challenges to moving forward
- Engineering: Collect custom tools/data requirements (IOU/POU). Review/standardize through Cal TF subcommittees
- eTRM Updates: Refine enhancements to eTRM so custom tools can be uploaded, and later possibly customer projects

# Next Steps for PAC

23

June  
8

Introduce  
concept

June  
21

eTRM  
capabilities  
and benefits

July  
TBD

Long term  
vision and  
roadmap

PAC and stakeholder input

Please complete doodle poll for July PAC  
meeting (7/14, 7/15, 7/21, or 7/22)