

eTRM Capabilities for Custom

- eTRM for Custom Measures
 - Information/Resources
 - Calculations
- eTRM for Custom Projects
 - Complete, Organized Packages
 - QA/QC Screening
 - Naming/versioning conventions
- eTRM for Custom Workflows
 - Documenting Technical Reviews
 - Status Tracking
 - Dashboards & Data Mining

eTRM

2



Information
Resource



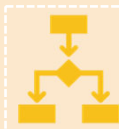
Dynamic
Database



Integrations



Calculations



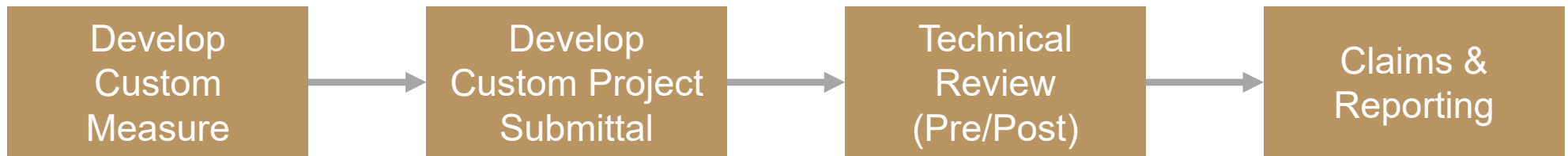
Workflow
Management



Analytics

eTRM Benefits for Custom

3



Cost Savings



Time Savings



Customer Experience



Standardization



Transparency



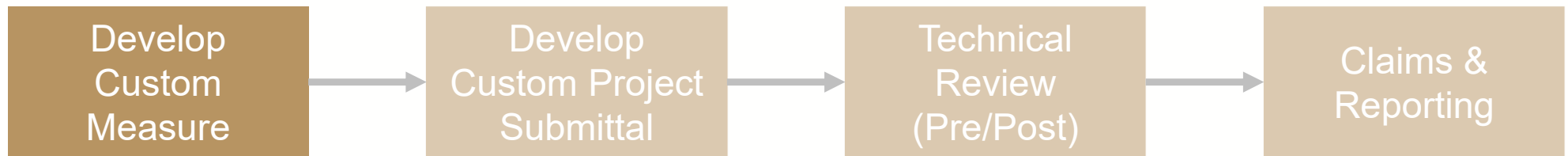
Stakeholder Engagement

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

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

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).

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." ⁽²⁵³²⁾ ⁽²⁵³³⁾ 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

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

Boiler, Commercial

CHARACTERIZATION
DEPENDENCIES
SUPPORTING DATA
CALCULATIONS
PERMUTATIONS

Measure Details

STATEWIDE MEASURE ID
SWWH005

MEASURE NAME
Boiler, Commercial

EFFECTIVE DATE
January 1, 2021

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 capacity of at least 4,000 Btu per hour per gallon of stored water." ^{R3391 R2353} Commercial instantaneous hot water boilers are included within this definition.

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

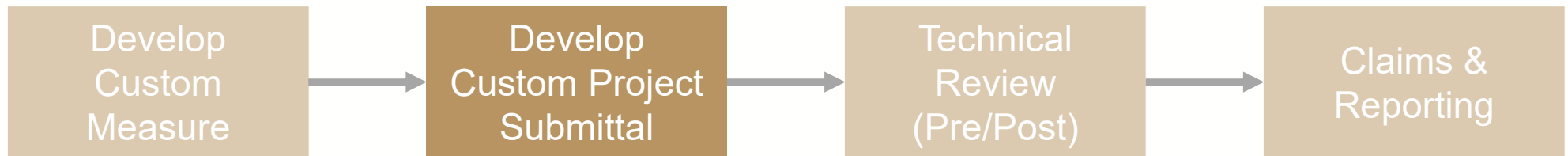
Stages: Project Package

7

Incomplete project package

Nonstandard formatting

Large number of supporting documents (multiple versions)



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 #

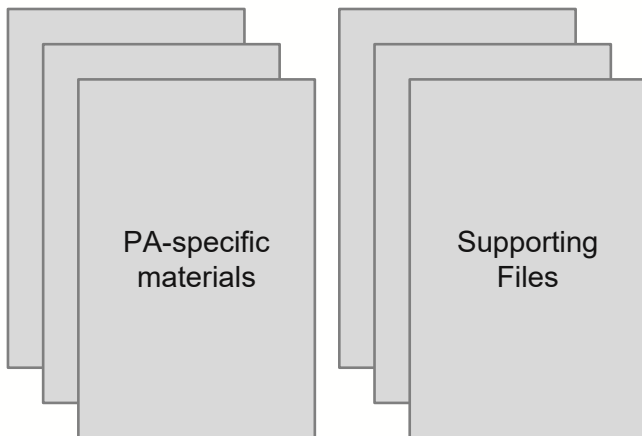
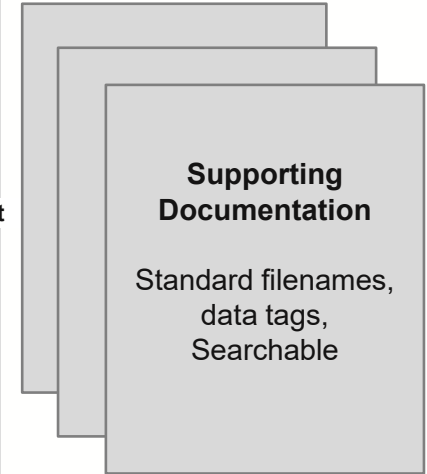
Prepared by:
Implementer/Developer Name
Address City, CA 95403
Primary Contact Name
Email
Phone: xxx-xxx-xxxx



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 ^{R1397} for details.

References

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

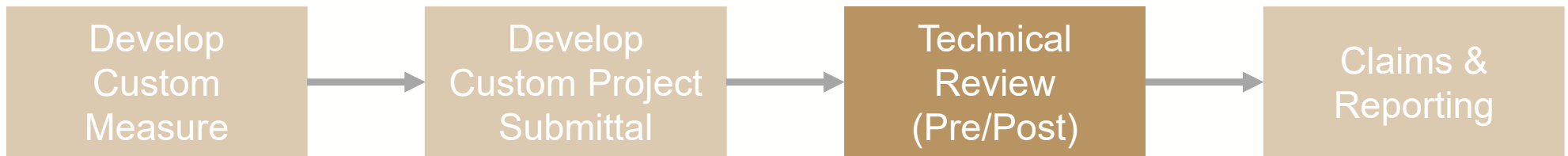
Reference tags in
project materials
connect to source
documentation



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 2	Electric Savings (kWh) 1	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." **2313** **2313** Commercial domestic hot water heater.

Due to hot wa EFFICI efficien circula withou 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.

[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

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

- 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*      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

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


<< < 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  **PRIVATE TO CPUC ROLES**
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  **PRIVATE TO CPUC ROLES**
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
 **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

16

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, Commerci...

[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



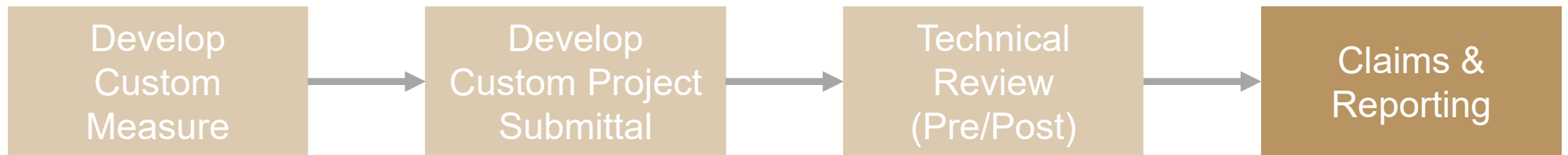
Stages: Claims and Reporting

17

Different names/codes for similar measures

Project data in different systems

Project data not readily available for ex post analysis



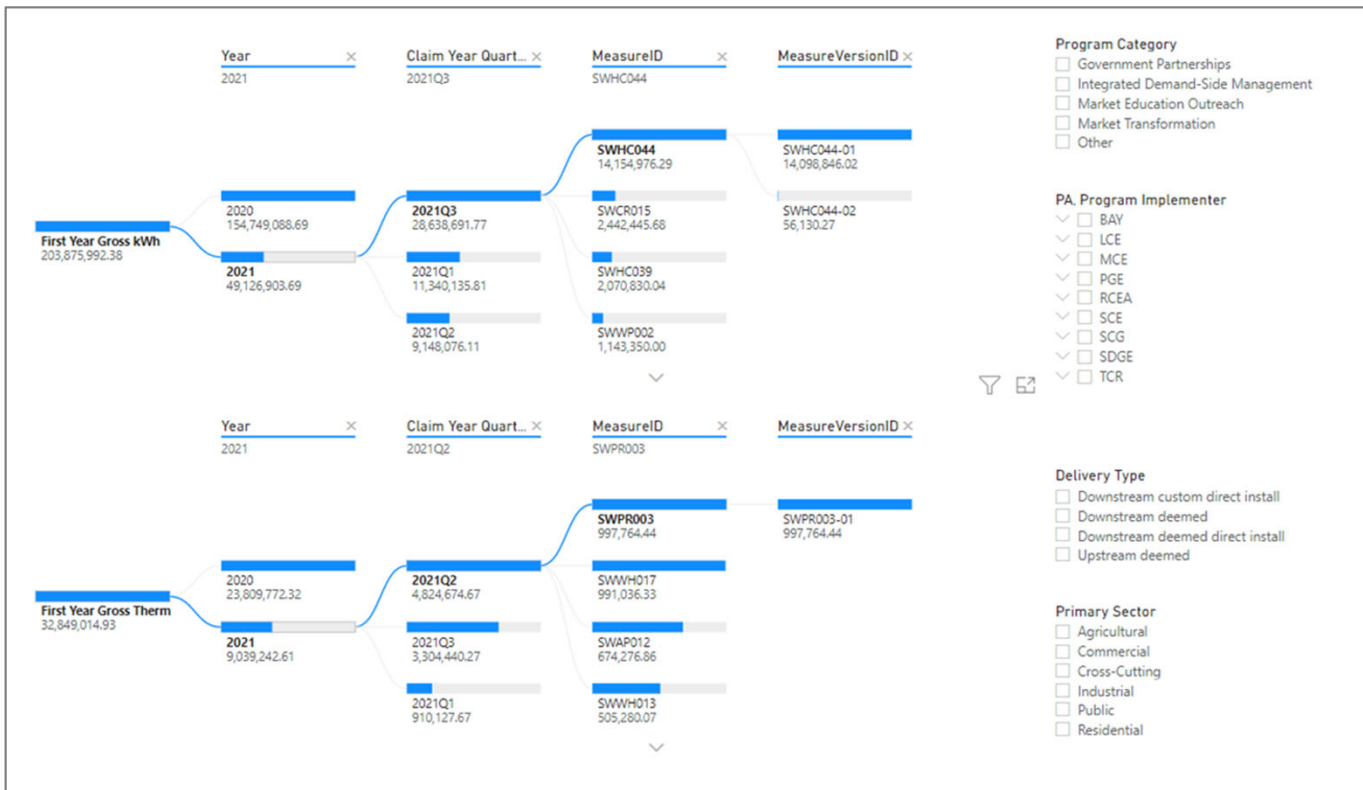
Data housed and organized in central location

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



Discussion

22