## OMBU + CALIFORNIA TECHNICAL FORUM

# eTR/\ Custom \ \ \ easures

## Design | Version 2.1 | 03/31/2023

This "Phase 1" of eTRM development for Custom creates a new measure type — Custom Measures — to host custom measure information (e.g., custom measure characterizations, savings calculation methods, etc.) and a library of custom tools for use in calculating custom measure savings. These developments focus on the eTRM as a source for calculation guidance and tools for custom measures; they do NOT include any functions related to intake, storage, or tracking of site-specific data.

Custom Measures are a type of measure that do not have pre-calculated savings values but instead document data requirements and calculation methods to determine energy savings when a custom project is implemented.

This document outlines the supporting views and functionality for this new type of measure in eTRM.

# Custom Library

Custom tools are tools outside the eTRM (usually Excel-based files) that are used to perform and document calculations used for Custom Measures, and can be linked to one or more Custom Measures in the eTRM.

The Custom Library is a new section of the eTRM to host custom tools and other custom resources.

# Custom Library View



## Custom Library

## **Calculation Tools**

Calculation tools are files used to calculate savings for custom measures.

#### **Boiler Load Balance and Scorecard Tool**

Excel workbook to determine boiler load factor

#### **Chiller Workbook**

To be used in measures related to chiller system upgrades

#### **DOE MEASUR Calculators**

External weblink to DOE's suite of MEASUR calculators

#### **HVAC Tool**

Excel workbook for calculating savings for multiple HVAC measures on CHW, HW, and air-side systems (also known as the PG&E HVAC Tool)

The Custom Library is a new section in the eTRM that lists all custom tools.

Project developers may click on each name (hyperlink text in green) to navigate to each tool's detail view, where they can read the tool's description, view its version history, view linked custom measures, and download the tool for their custom project.

The versioning, editing, and access controls of custom tools are identical to other eTRM Shared Data objects.

## Templates

Templates are resources to help with the development of projects, studies, and reports.

### **Project Feasibility Study Template, version 1.0**

This document is a template for implementers to use and fill out in describing a feasibility study to be submitted to the CPUC.

### Post Installation Summary Report, v1.0

This document is a template for implementers/project developers to use and fill out as the post-installation report that is to be submitted...

Custom tools are shown grouped by type. Each column is one type of tool listed in alphabetical order, with a description of up to two lines of text. Admin users may manage custom tools in Admin Central



НОМЕ

**MEASURES** 

**SHARED DATA** 

CPUC SUPPORT TABLES

PA IMPLEMENTATION CODES

MEASURE DATA PROPERTIES

**eTRM STATS** 

**CUSTOM LIBRARY** 

**USER GUIDE** 



Admin

**PROFILE** 

**SIGN OUT** 



## Custom Tool Detail View



Q

HOME

**MEASURES** 

**SHARED DATA** 

CPUC SUPPORT TABLES

PA IMPLEMENTATION CODES

MEASURE DATA PROPERTIES

**eTRM STATS** 

**CUSTOM LIBRARY** 

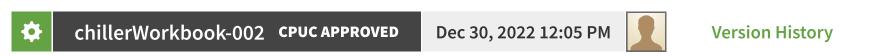
**USER GUIDE** 



Admin

**PROFILE** 

**SIGN OUT** 



**< CUSTOM LIBRARY** 

## Chiller Workbook

CONFIGURE 🌣

Name

**Version and status** 

**DETAILS DEPENDENCIES SUBSCRIPTIONS** 

#### **TYPE**

Calculation Tool

#### **DESCRIPTION**

To be used in measures related to chiller system upgrades.

#### **SOURCE DESCRIPTION**

This tool is managed by eQuest. This version is eQuest365-5678 and was published 01/01/2023. Visit the <u>developer's source</u> for more information.

#### **EFFECTIVE START DATE**

Jun 1, 2023

#### **DOWNLOAD**



The custom tool download button appears the same in all views of the eTRM. It displays the name, version, custom tool type, file type, and file size. Selecting it downloads the file.

A custom tool's detail page lists the type, description, source description, effective start date, and effective end date (if present)

#### **Tab content:**

Dependencies tab allows the user to view all downward dependencies, i.e. all the eTRM objects that depend on this custom tool

Subscriptions tab allows the user to subscribe to announcements related to this custom tool

# Custom Measures

This section presents the appearance of a Custom Measure as seen by both a Base User (read only) and Measure Developer (editing)

## Custom Measure View

A Custom Measure has the same appearance as a Deemed Measure

Custom Measures are distinguished from Deemed Measures by the Measure ID (beginning with CM) and the Measure Type (see below)

**HOME** 

**MEASURES** 

**SHARED DATA** 

Measures Type is a new piece of data in the Measure Details

Deemed Measures will also have this new piece of data, in that case the type being "Deemed"

MEASURE DATA
PROPERTIES

**eTRM STATS** 

**CUSTOM LIBRARY** 

**USER GUIDE** 



Admin

**PROFILE** 

**SIGN OUT** 

CMAP001-01

Dec 1, 2022 1:00 PM

**Version History** 

## Chiller System Upgrade

**E** CHARACTERIZATION

**DEPENDENCIES** 



**E** CALCULATIONS

**PERMUTATIONS** 

**SUBSCRIPTIONS** 

## Measure Details

**MEASURE TYPE** 

Custom

**MEASURE ID** 

CMAP001

**MEASURE NAME** 

Chiller System Upgrade

PA LEAD SDG&E **SOURCE DESCRIPTION** 

CMAP001-01-1

**USE CATEGORY** 

AP - Appliance or Plug Load

**EFFECTIVE DATE** 

January 1, 2023

## 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.



## **Table of Contents**

**Technology Summary** 

Measure Case Description

Base Case Description

**Code Requirements** 

**Program Requirements** 

**Program Exclusions** 

Data Collection Requirements

Electric Savings (kWh)

Peak Electric Demand Reduction (kW)

Gas Savings (Therms)

Life Cycle

Base Case Material Cost

Measure Case Material Cost

**Base Case Labor Cost** 

Measure Case Labor Cost

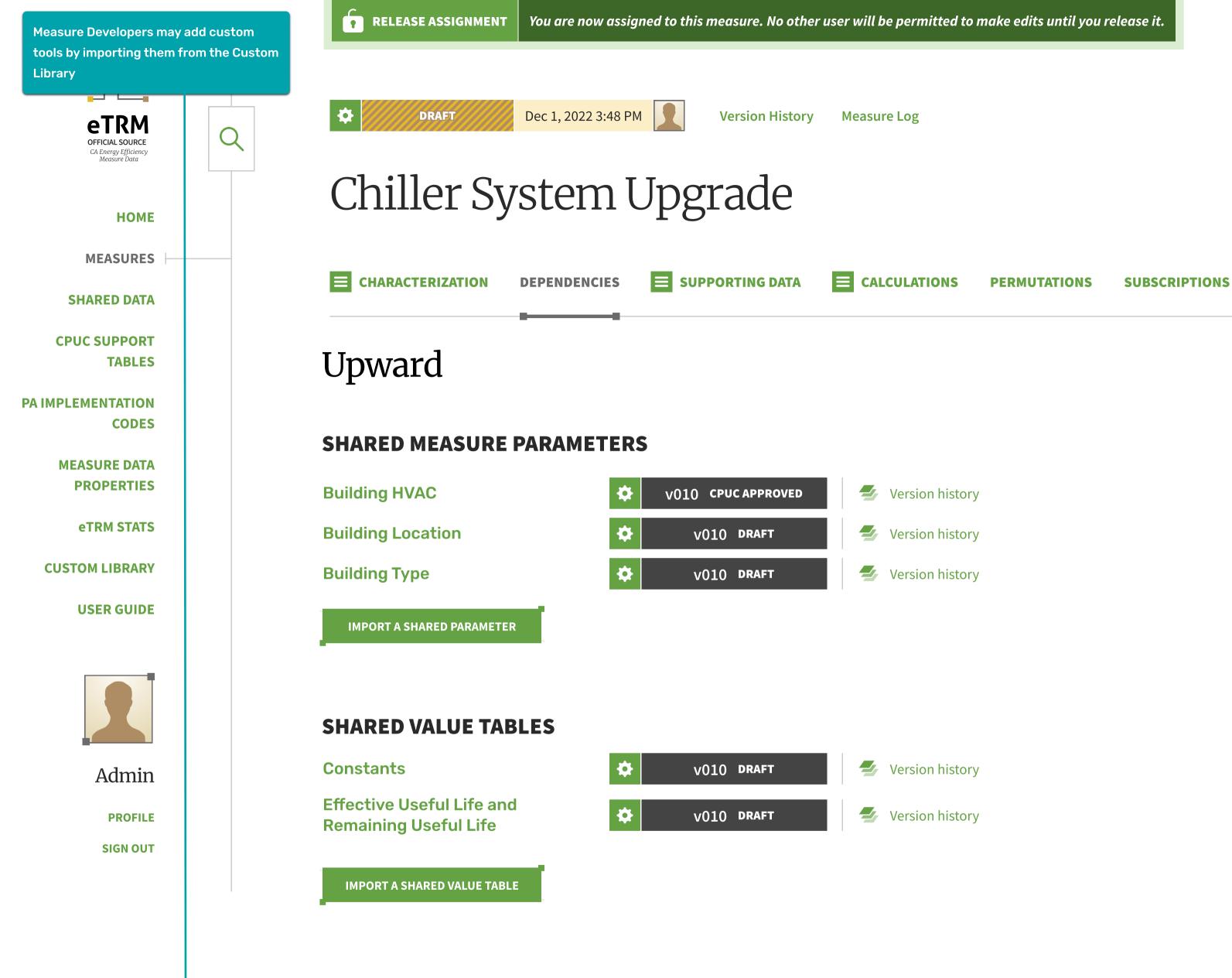
Net-to-Gross

Gross Realization Rate (GRR)

Non-Energy Impacts

**DEER Differences Analysis** 

# Importing a Custom Tool into a Custom Measure

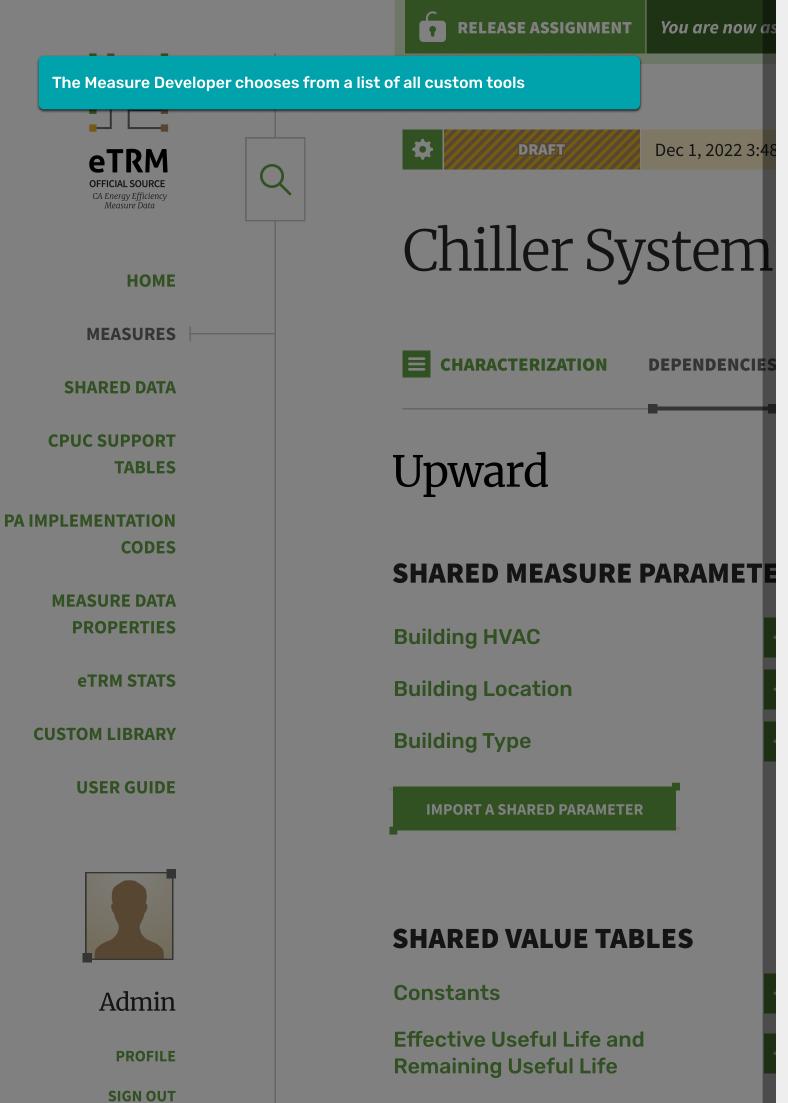


## **CUSTOM TOOLS**

This measure does not contain any custom tools.



Base users would see this view as read-only, with no import buttons



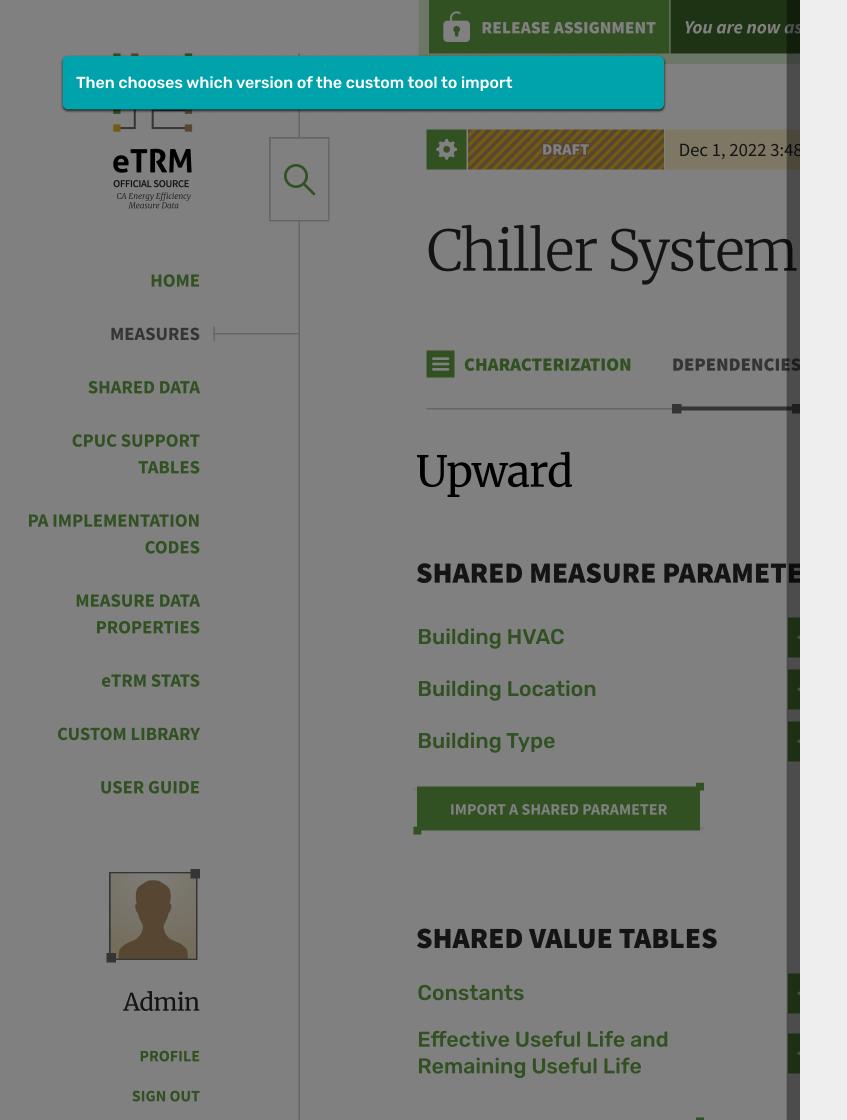


## Custom Tool

Q Find			
TITLE	DESCRIPTION	TYPE	LAST UPDATED
P Boiler Load Balanc Scorecard Tool	Excel workbook to determine boiler load factor	Calculation Tool	Jan 1, 2023
P Chiller Workbook	CHOOSE X in measures related to chiller system.	Calculation Tool	Jan 15, 2023
P DOE MEASUR Calc	External weblink to DOE's suite of MEASUR	Calculation Tool	Jan 5, 2023
P HVAC Tool	Excel workbook for calculating savings for multip	ol Calculation Tool	Jan 1, 2023
P Project Feasibility 5 Template, version 1			Jan 1, 2023
P Post Installation Summary Report, V	This document is a template for implementers/ v1.0  project developers to use and fill out as the post-	Template 	Jan 1, 2023

Choose

Cancel



**CHOOSE A CUSTOM TOOL VERSION** 

## Chiller Workbook



CHANGE DESCRIPTION

Short description of this change

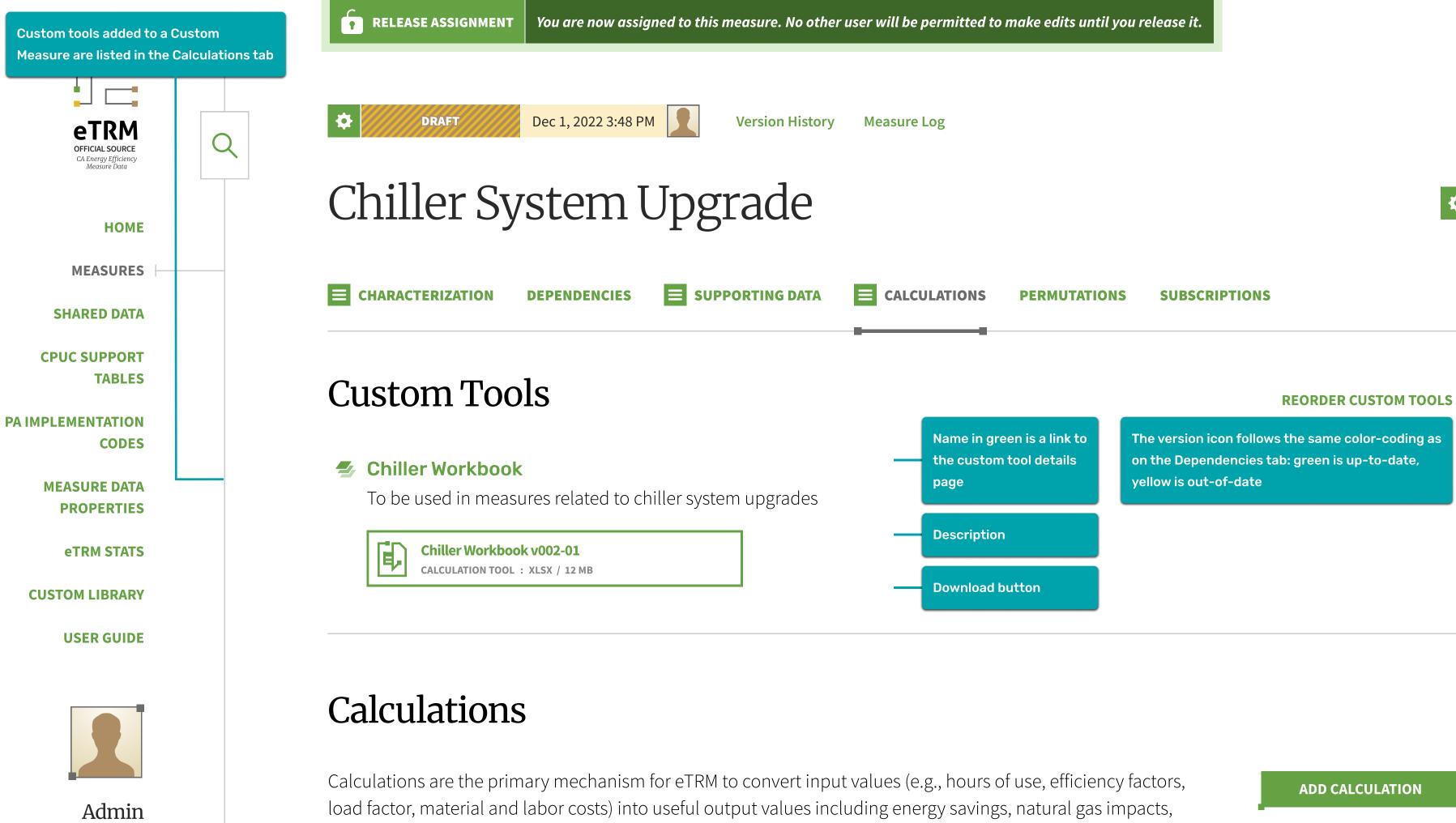
Short description of this change

Choose

Cancel



## Custom Tools in Calculations



Calculations are the primary mechanism for eTRM to convert input values (e.g., hours of use, efficiency factors, load factor, material and labor costs) into useful output values including energy savings, natural gas impacts, and incremental measure costs. Calculations are performed serially, starting with the first equation on this page and progressing down until all equations are done. Measures with savings determined via simulation modeling generally have limited or no savings equations here; more information regarding savings approaches can be found on the **Characterization** tab for this measure.

**REORDER CALCULATIONS** 

## Multifamily Common Area Scaling Factor in ratio

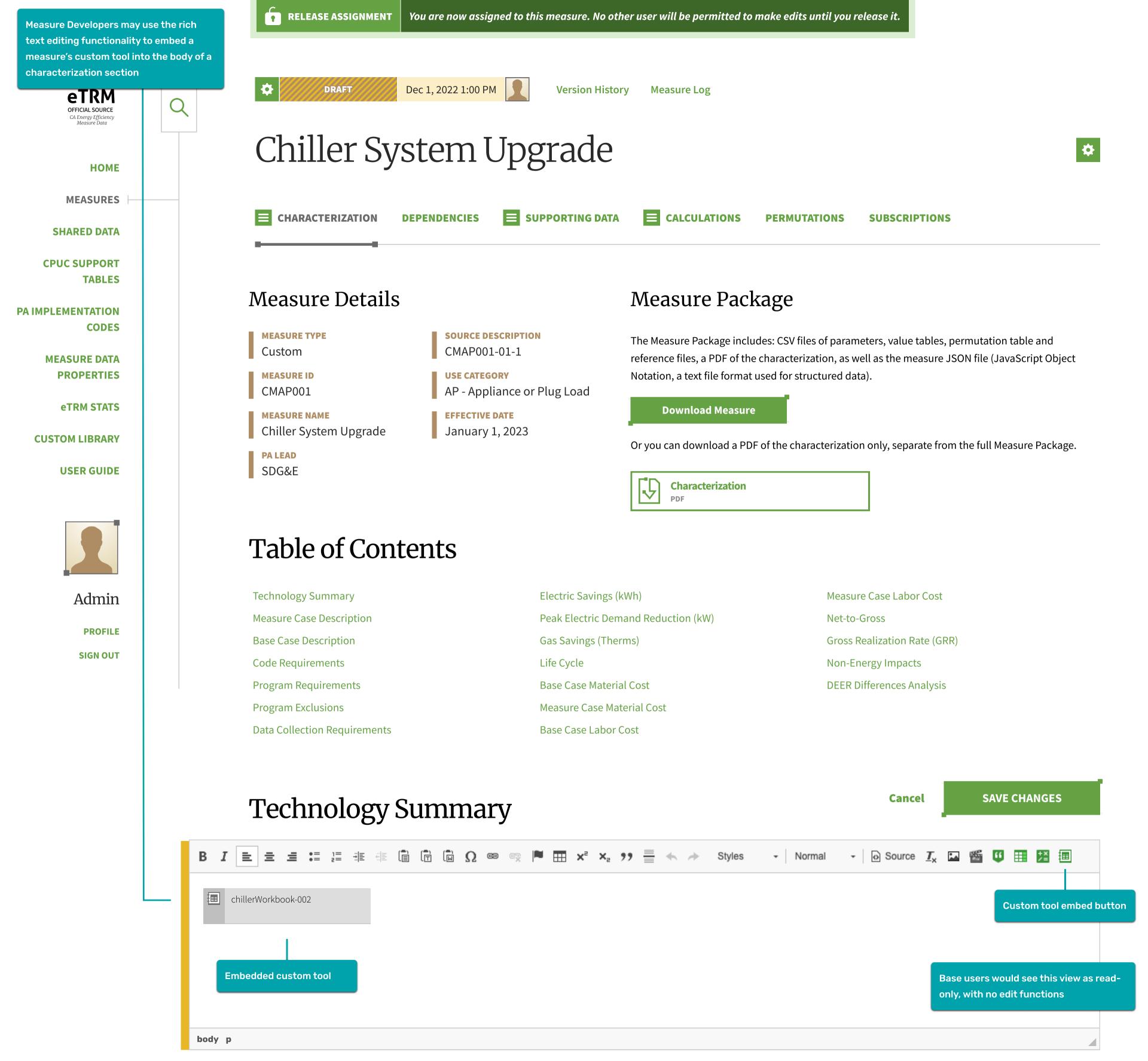
**PROFILE** 

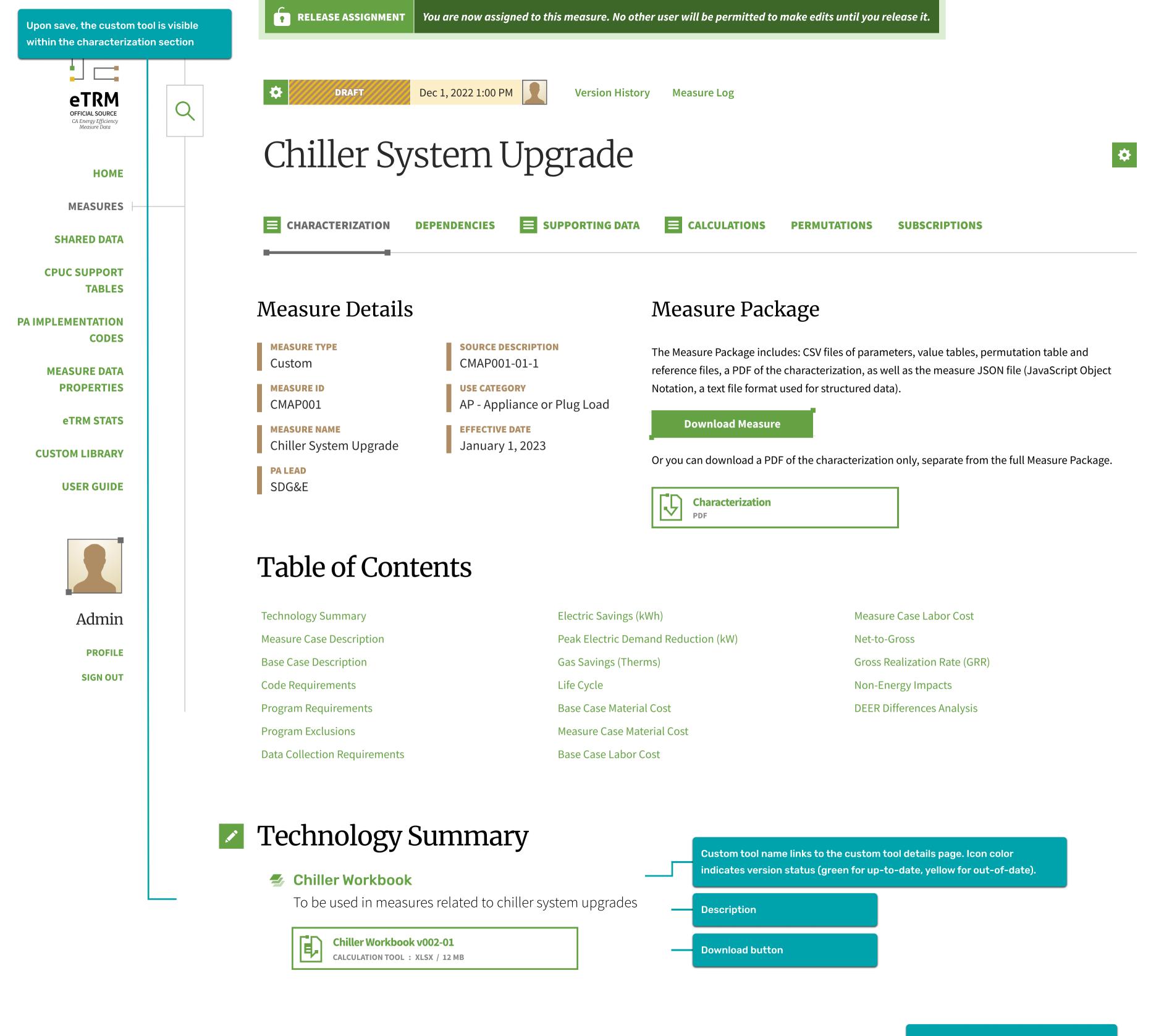
**SIGN OUT** 





# Including a Custom Tool in a Characterization





Measure Case Description

Base users would see this view as readonly, with no edit functions

Base Case Description

# Building Permutations

Permutations are configured in the same way as other measures, from the configure option on the permutations tab





**HOME** 

**MEASURES** 

**SHARED DATA** 

**CPUC SUPPORT TABLES** 

**PA IMPLEMENTATION CODES** 

> **MEASURE DATA PROPERTIES**

> > **eTRM STATS**

**CUSTOM LIBRARY** 

**USER GUIDE** 



Admin

**PROFILE** 

**SIGN OUT** 

RELEASE ASSIGNMENT

You are now assigned to this measure. No other user will be permitted to make edits until you release it.



DRAFT

Dec 1, 2022 3:48 PM



**Version History** 

Measure Log

## Chiller System Upgrade



**E** CHARACTERIZATION

**DEPENDENCIES** 



**SUPPORTING DATA** 



**E** CALCULATIONS

**PERMUTATIONS** 

**SUBSCRIPTIONS** 

No permutations have been built for this measure.



Custom Measures do not have Shared Reports, Custom **Reports, Other Reports, or CET Integrations** 



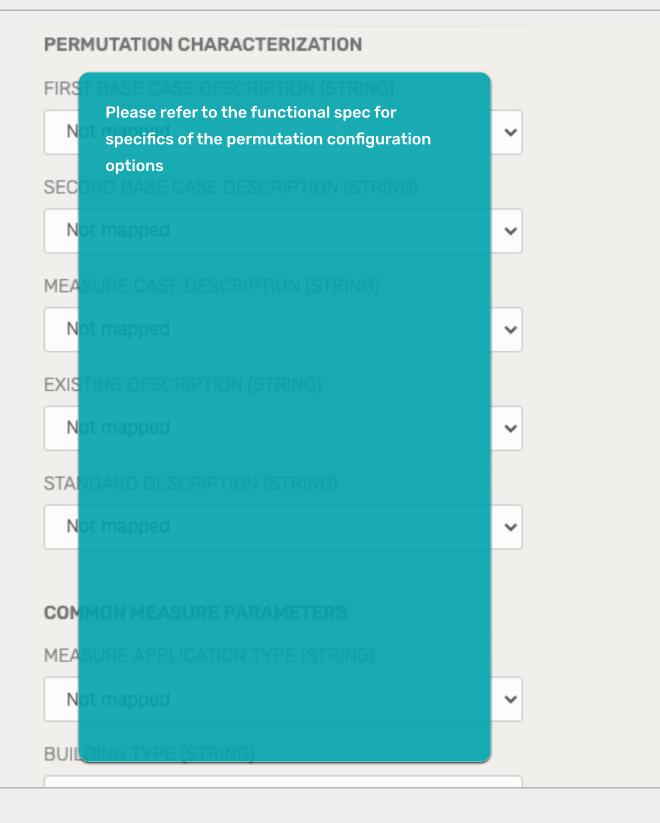
Custom Measures are subject to a reduced data spec compliance requirement, which affects permutation configuration

**CONFIGURE PERMUTATION FIELDS** 

## Chiller System Upgrade #CMAP001

## Data spec fields

Additional fields



Save

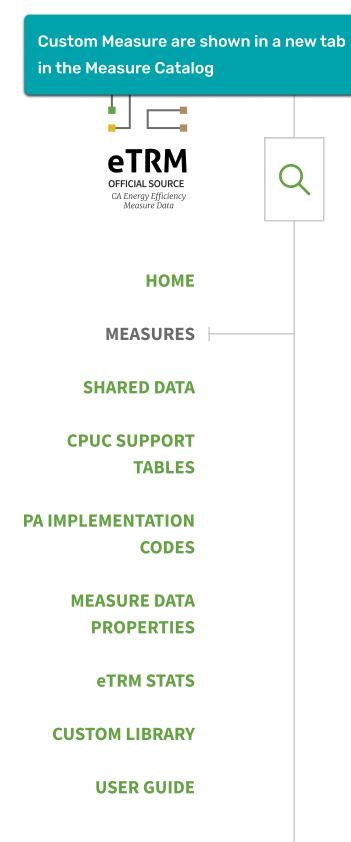
Cancel

Delete

## Custom Measures in the eTRM

Custom Measures appear in the Measure Catalog (new tab) and Search Results

# Custom Measures in the Measure Catalog





Admin

**PROFILE** 

**SIGN OUT** 

## Measure Catalog

DEEMED MEASURES

CUSTOM MEASURES

MEASURE REPORTS

The existing "Measures" tab has been renamed to "Deemed Measures" and a "Custom Measures" tab has been added

Find by keyword...

Add a Filter

Starting row Rows per page

1-5 of 5 measures

Starting row 25 Go

NAME A	MEASURE VERSION ID ♣	TYPE ♣	USE CATEGORY ♣	PUBLISHED ै
Chiller System Upgrade	CMAP001-01	Custom	AP - Appliance or Plug Load	Dec 1, 2022
Custom Measure Name	CMAP002-01	Custom	AP - Appliance or Plug Load	Dec 5, 2022
Custom Measure Name	CMAP003-01	Custom	AP - Appliance or Plug Load	Dec 2, 2022
Custom Measure Name	CMAP004-01	Custom	AP - Appliance or Plug Load	Dec 1, 2022
Custom Measure Name	CMAP005-01	Custom	AP - Appliance or Plug Load	Dec 15, 2022





**1-5** of **5** measures





Starting row

1

Rows per page 25

Go

# Custom Measures in Search Results





## chiller



#### **HOME**

**MEASURES** 

**SHARED DATA** 

**CPUC SUPPORT TABLES** 

**PA IMPLEMENTATION** CODES

> **MEASURE DATA PROPERTIES**

> > **eTRM STATS**

**CUSTOM LIBRARY** 

**USER GUIDE** 



### Admin

**PROFILE** 

**SIGN OUT** 

## **6** SEARCH RESULTS





1-6 of 6 search results



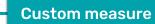


## SWHC052-01: Air-Cooled Chiller, Path B

... 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 ...



## CMAP001-01: Chiller System Upgrade —



... 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, less complex ...



## SWHC005-02: Water-Cooled Chiller

... chiller are based on the unit operating under standard test conditions, normally determined by AHRI Standard 550/590 – 20163. Chillers have two different energy efficiency rated conditions: 1) full load efficiency (EER, kWh/ton) and 2) part load efficiency (integrated part load value (IPLV)). The measure case is defined as a variable speed water-cooled **chiller** for use in nonresidential buildings ...



## 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-

# Admin Functionality

# Creating a Custom Tool

An admin user may create a new custom tool by selecting "Manage custom tools", then selecting "Create".

The Manage custom tools panel has the same appearance and functionality as the Manage shared parameters panel.



#### CONTENT

### Measures

The primary object in eTRM, comprising all content needed to develop a regulated measure and build its permutations.

Manage measures

Manage archived measures

## **Shared Parameters**

Parameters are used to characterize individual measure permutations that qualify energy savings and (in some cases) costs. Shared parameters are those that are used by multiple measures in the eTRM.

Manage shared parameters

## **Custom Library**

A library of tools and resources for use with Custom Measures.

Manage custom tools

## References

A library of authoritative information sources which can be cited by assorted objects throughout eTRM.

Manage references

## **Shared Value Tables**

Value tables are used to assign specific numeric values to equations as well as to define values relevant to measure tracking and reporting.

Shared value tables are used by multiple measures in the eTRM.

Manage shared value tables



Custom tools require all fields marked with a red asterisk

Custom tool type may be one of the following:

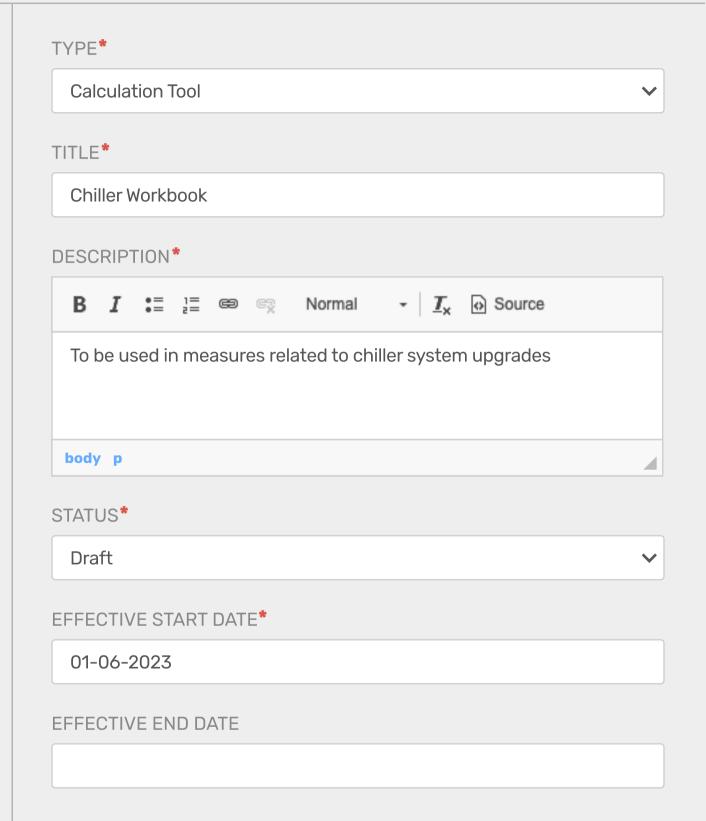
- Calculation Tool
- Template
- Other

**CREATE A NEW** 

## **Custom Tool**

Basic

Source



Save

Cancel

Custom tools require a source of a file or external URL

If a custom tool's source is a file, a compatible file type must be uploaded

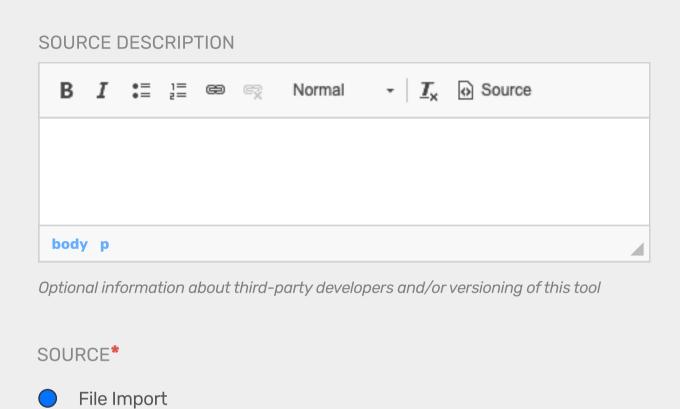
If a custom tool's source is a file, a compatible file type must be uploaded

**CREATE A NEW** 

## **Custom Tool**

Basic

Source



CHOOSE FILE TO IMPORT

External Link

Choose File chiller\_workbook.xlsx

Allowed file formats are: Excel (.xlsx, .xlsb, .xlsm), Word (.docx), ZIP, or PDF

Save

Cancel

Custom tools require a source of a file or external URL

The user may optionally include information about the source of this tool, including external links and version details

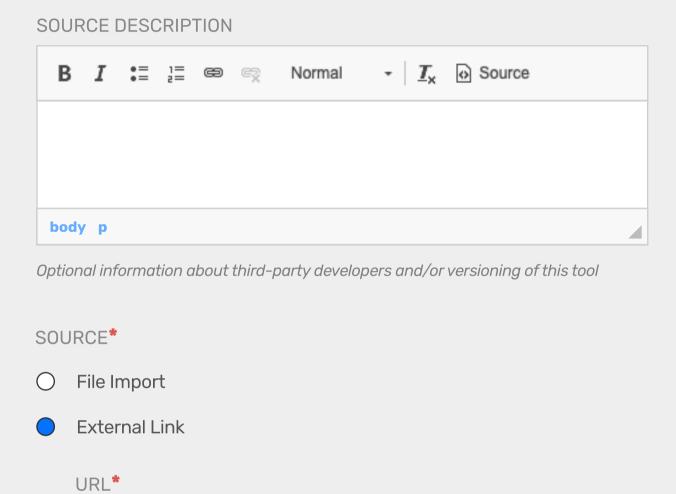
If a custom tool's source is a link, the required information is a URL rather than a file

**CREATE A NEW** 

## **Custom Tool**

Basic

Source



https://externalsource.com/path/to/calculation-tool.xlsx

Save Cancel

Newly created custom tools first appear as an upublished draft. In order to be published and visible to all eTRM users the draft must be committed on the custom tool's detail page. MANAGE

## Custom Tools

Create



	TITLE	DESCRIPTION	TYPE	LAST UPDATED
Р	Boiler Load Balance and Scorecard Tool	Excel workbook to determine boiler load factor	Calculation Tool	Jan 1, 2023
Ļ	Chiller Workbook	To be used in measures related to chiller system	Calculation Tool	Jan 15, 2023
Р	DOE MEASUR Calculators	External weblink to DOE's suite of MEASUR	Calculation Tool	Jan 5, 2023
Р	HVAC Tool	Excel workbook for calculating savings for multipl	Calculation Tool	Jan 1, 2023
P	Project Feasibility Study Template, version 1.0	This document is a template for implementers to use and fill out in describing a feasibility study to	Template	Jan 1, 2023
P	Post Installation Summary Report, v1.0	This document is a template for implementers/ project developers to use and fill out as the post	Template	Jan 1, 2023

Selecting a custom tool allows the user to view or delete it

#### Scorecard Tool



# Creating a Custom Measure

A Custom Measure is created from the Admin panel in the the same way as a Deemed Measure

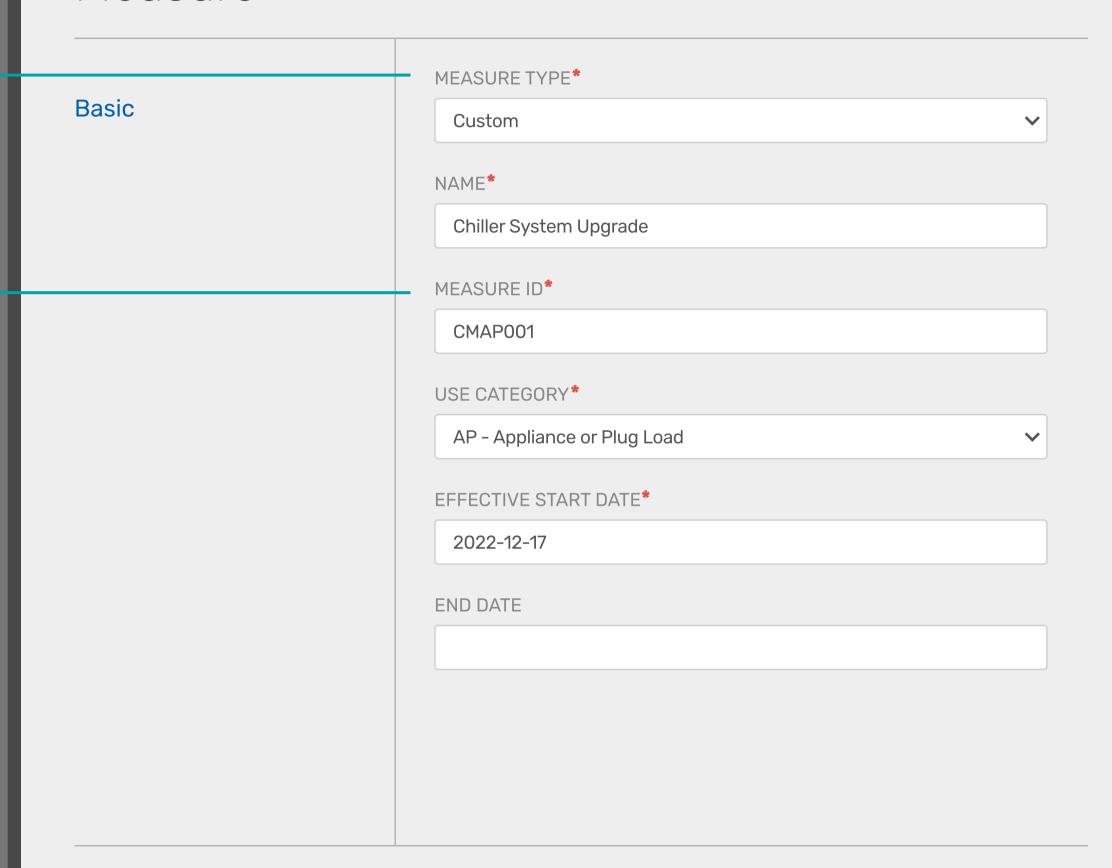
All measures will need to indicate their Measure

Type, which is a choice of "Deemed" or "Custom"

All custom measures must have a Measure ID beginning with "CM"

**CREATE A NEW** 

## Measure



Save

Cancel