

California Statewide Deemed Measures

Technical Reference Manual for California Municipal Utilities Association: 2026 First Edition

VERSION 2.1

Last Updated April 9th, 2026

INTRODUCTION

Purpose

The Technical Reference Manual (TRM) for publicly owned utilities (POUs) in California is a comprehensive set of deemed energy efficiency (EE) measures that POU programs can use. For each measure and project, the TRM details:

- Estimated energy and water savings
- Costs
- Other potential impacts
- Methods used to calculate these estimates
- Eligibility requirements

POUs use energy savings estimates to track their program achievements and measure progress toward their energy efficiency goals.

This manual explains to program administrators, regulators, evaluators, utility customers, and other stakeholders how California POUs consistently and transparently calculate the energy savings from their EE programs.

Background

California law (SB1037, AB2021, and Section 9505 of the Public Utilities Code) requires POUs to report their annual program impacts, including program energy savings, to the California Energy Commission (CEC). Since 2006, California's publicly owned utilities have worked together to create standardized tools and resources for this consistent and reliable reporting.

In 2021, the California Public Utilities Commission (CPUC) designated the electronic Technical Resource Manual (eTRM), a software database for deemed statewide energy efficiency (EE) measure packages, as the "data source of record" for CPUC-approved deemed EE measures. [1]

In April of 2025, the 2025 CMUA POU TRM, the first POU TRM edition to sync with the latest statewide data from the eTRM, was published and replaced its predecessor 2017 CMUA POU TRM for program savings reporting. The latest CMUA POU TRM re-issue is intended to bring the POU TRM in exact alignment with California's building energy code (Title 24) cycle and reflects all measure updates since the 2025 edition.

Manual Organization

This manual consists of this PDF document – which includes all active deemed measure package versions hosted in the eTRM and various data libraries – and all the embedded spreadsheets. Contents are grouped into the following sections and subsections, and data is presented in a consistent tabular format.

Table of Contents: Lists all the measures included in this document and their effective date ranges. Measures are grouped by their Use Category, such as HVAC, Food Service, etc.

Measures: Measures are grouped by the end-use category and ordered by their measure version ID (see "Key Terminology"). Each measure page presents the measure's information in the following order:

- **Measure Name**: Each new measure will start with the measure's name in a large serif font, followed by the link to the eTRM measure page in case users need additional information – not provided in this TRM – from the eTRM.



[1] California Public Utilities Commission (CPUC). 2021. Resolution E-5152. August 6.

- **Measure Properties**: Section provides the measure's identification (Use Category and Measure Version ID), as well as the Effective Date Range (Start Date and End Date) to indicate the measure's active period.

  Note, eTRM measures may have a blank End Date. In these cases, a default date of 3 years after the POU TRM Start Date is assigned for the measure in this POU TRM. This is a change from the 2025 POU TRM edition's calculation logic of 3 years after the measure StartDate; the new logic ensures the measure remains available as long as it is active in the eTRM. To be consistent with eTRM's convention, the day of the End Date is before the Start Date of any subsequent measure version (e.g., 10/1/2023 – 12/31/2028; a new version can then start from 1/1/2029).

USE CATEGORY	EFFECTIVE START DATE
AP - Appliance or Plug Load	2023-10-01
VERSION	**END DATE**
SWAP020-01	2028-12-31

- **Measure Case and Base Case Definition:** This section provides an overview of the measure's base and measure case. The two tables in this section define the determinants (i.e., energy efficient measure case variation, base case variation, and/or installation circumstances) that further characterize the measure. These are the offerings or sub-measures within the measure package.

  The "Offering ID" table describes the scope of the energy efficient measure case. The "Base Case Description" describes the base case that is being replaced. Definitions of "Measure Offering Description", "Existing Description", and "Standard Description" can be found in the Key Terminology section of this document.

  Note, large "Offering ID" and/or "Base Case Descriptions" tables will not be displayed in this PDF due to space limitation. They are saved to the "Oversize Offering ID and Base Case Description Tables.xlsx" file.

Offering ID

Commercial high- and low- temperature door type dishwasher that meets (Tier 1) or exceeds by 15% (Tier 2) the ENERGY STAR® Commercial Dishwasher Version 3.0 specification.

Tier	Temperature	Statewide Measure Offering ID	Measure Offering Description (text)
Tier 1	High	C	Efficient commercial dishwasher, high temp, tier 1 (gal/rack <= 0.89, idle rate <= 0.55)
Tier 1	Low	D	Efficient commercial dishwasher, low temp, tier 1 (gal/rack <= 1.18, idle rate <= 0.30)
Tier 2	High	A	Efficient commercial dishwasher, high temp, tier 2 (gal/rack <= 0.76, idle rate <= 0.55)

Base Case Description

Industry standard practice door-type commercial dishwasher.

Tier	Temperature	Statewide Measure Offering ID	Existing Description (text)	Standard Description
Tier 1	High	C	Standard commercial dishwasher, high temp	Standard commercial dishwasher, high temp
Tier 1	Low	D	Standard commercial dishwasher, low temp	Standard commercial dishwasher, low temp
Tier 2	High	A	Standard commercial dishwasher, high temp	Standard commercial dishwasher, high temp

- **Applicable Parameters:** Lists of the parameter labels that are applicable for each measure. The definition of each parameter can be found in the Key Terminology section.

Parameters	Labels
Measure Application Type	NC – New construction, NR – Normal replacement
Sector	Ag – Agricultural, Com – Commercial, Ind – Industrial
Building Type	Any
Building Vintage	Ex – Existing, New – New
Building Location	All climate zones

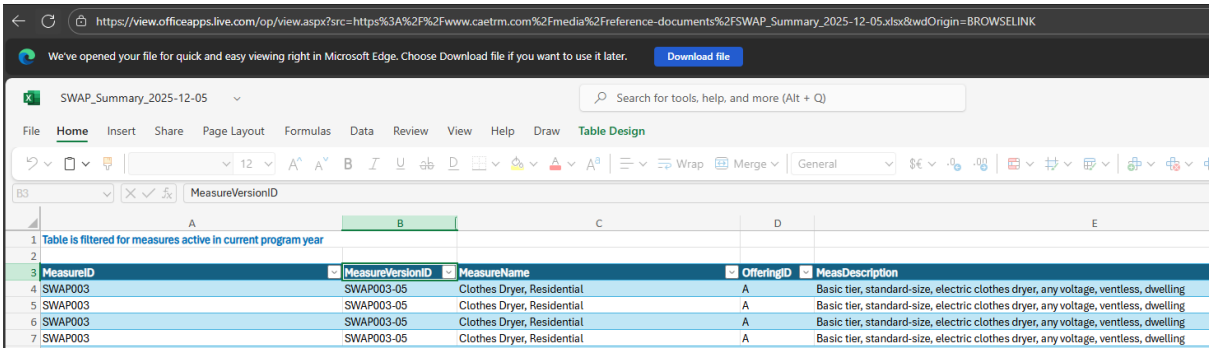
- **Average Impacts:** Measure-level averages of energy savings, costs, water savings, and useful life. Values are calculated by averaging the applicable eTRM permutations. For details on the calculation methodology used to derive the impact data, click the hyperlink to be directed to the appropriate characterization section in the eTRM. Non-applicable fields (e.g., normal replacement measures do not use existing baseline) are left blank.

Average Impacts:

	Average Value	Methodology
Peak Demand Reduction – Standard (kW)	0.29	Link
Peak Demand Reduction – Existing (kW)	-	
Electric Savings – Standard (kWh/yr)	136.08	Link
Electric Savings – Existing (kWh/yr)	-	

- **Streamlined (or summary) Permutations file:** The same impact fields and calculation logic as above but at the measure offering, building location (i.e., climate zone), and sector level. These are external Excel spreadsheets, viewable and downloadable as eTRM reference links. The streamlined permutation data is grouped by Use Category and is accessible via hyperlinks located at the end of the "Average Impacts" table or from the Appendix.

Streamlined Permutations: SWWH_Summary.xlsx



- **Others:** Text describing program exclusions, quality assurance related to design, installation, commissioning, and operation, and other important notes.

Others:

Program Exclusions
Used or rebuilt equipment and other dishwasher types (conveyor, under-counter, flight-type) are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Program Exclusions highlight any rules or restrictions that limit the eligibility of the measure, such as excluded market segments and building types.

Quality Assurance lists the verification and quality-related activities required for the design, installation, commissioning, and operation of the measure.

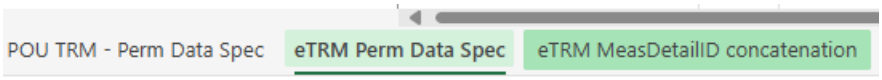
Important Notes document miscellaneous information important to the measure not already captured in other sections.

Key Terminology: Definitions and supplementary information for each data specification field in the eTRM and POU TRM permutations and for other important terms used in this document.

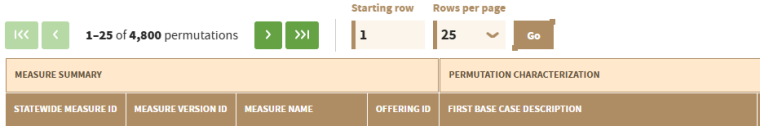
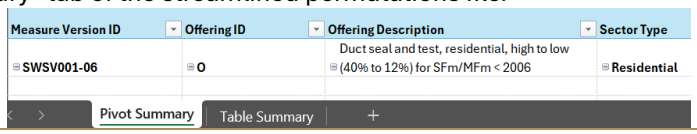
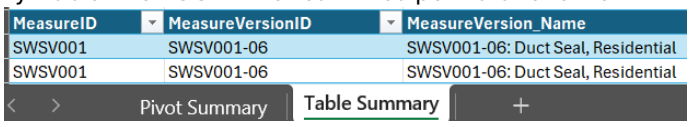
Data Tables: Large data tables that could not be displayed in the "Key Terminology" section due to sizing and usability. These tables include Effective Useful Life (EUL), Net to Gross (NTG), and Gross Savings Installation Adjustment (GSIA).

Appendix:

- **Permutations Summary Spreadsheet:** All the streamlined (summary) permutations spreadsheets accessible from one central location.
- **Permutation Data Specification:** An embedded Excel workbook that lists the data specification fields in the eTRM permutations table or the POU TRM streamlined permutations table, in the order that they appear. The permutations tables (i.e., original eTRM and POU streamlined permutations) are listed in their respective tabs.



The following columns describe each data specification field.

Column	Description
[Field] Verbose name	Human-readable name of the data specification field. **eTRM Permutations:** Verbose name is used on the eTRM website or in the permutation CSV file downloadable from eTRM measure page.  **POU TRM Streamlined Permutations:** It is used in the PDF and the "Pivot Summary" tab of the streamlined permutations file. 
[Field] Reporting name	API names of the data specification fields. This API "Reporting Name" is used in the API or Postgres SQL read-only database and the "Table Summary" tab of the POU TRM streamlined permutations file. 
Order	Order in which the field appears in the permutation. List is sequential.
Grouping	**eTRM Permutations:** Type or category of data specification fields **POU TRM Streamlined Permutations:** N/A
Type	**eTRM Permutations:** How fields are generated in the permutation tables. • Automatically generated measure metadata • Manually mapped (to a parameter, value table, or calculation) by a user • Uploaded data from external CET) **POU TRM Streamlined Permutations:** How fields are derived from eTRM. • eTRM fields • Concatenation of >1 eTRM fields

Column	Description
	• Average of eTRM numerical values (eTRM permutations are collapsed into 1 POU TRM permutation) • Concatenation of eTRM string values (eTRM permutations are collapsed into 1 POU TRM permutation) • Calculated based on conditions, such as by Measure Application Type
Data type	Data type of the values, such as "String" and "Decimal"
Sample value	Example value in this field
Definition	Free text definition field for each data specification. Summary of the definition from the "Key Terminology" section.

- **Sunsetted (or Deactivated Measures):** A list of sunsetted or deactivated measure versions plus four flags to indicate reasons for sunsetting or deactivating:
    - TRM Update: A new TRM has been created, effectively expiring all the measures from the previous TRM. *Note that there may be equivalent measures but with a new measure ID scheme.*
    - Measure Version Update: Measure version is expired or past its End Date and a new measure version with data updated for the latest program year is available. The latest version should be used.
    - Measure Sunsetted/Deactivated: The entire measure package is sunsetted or deactivated without a replacement version for various reasons, such as code change or low measure uptake, etc.
    - Transfer to Different Measure: Measure and its offerings are now offered under a different measure package.

CONTACT

For any questions or feedback regarding this TRM or to report any error in the TRM, please contact us at *etrm@futee.biz*.

REVISION LOG

Version	Published Date	Change Description	Owner
1.0	2025-03-23	Initial version of this POU TRM, replacing the previous *2017 CMUA Savings Estimation POU Technical Reference Manual*. • New structure, terminology, and information. • New measures list extracted and summarized from eTRM.	CMUA
1.1	2025-04-28	Official publication of the 2025 POU TRM with finalized list of measures. Other updates include: • Added notes when the Oversized Offering ID and Base Case Description Tables file is needed for a measure • Updated EndDate calculation to account for leap year and to fall on the day before the day of the StartDate	CMUA
2.0	2025-12-23	Official publication of the 2026 POU TRM with new list of measures for program year 2026. This edition also updates measure end dates so that they coincide with the three-year Title 24 code cycle. Note: Some PY2026 measures in this edition show significant changes to the energy savings in comparison to their PY2025 version in the April TRM edition. These changes are primarily driven by the Title 24 code update, the transition from eQUEST to EnergyPlus for modeling, and modifications to the measure offerings. Other updates include: • Replaced the embedded permutation summary spreadsheets with eTRM reference links • Modified EUL and RUL Years to round to 2 decimal points	CMUA
2.1	2026-04-09	Corrections to the 2026 POU TRM: • Repopulated the missing SWFS021-05 measure • Corrected calculation errors in the Change to Impacts table See "Errata Log" for detailed information on the corrections made to each measure.	CMUA

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https://www.caetrm.com/measure/SWAP001/06/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2024

VERSION
SWAP001-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An ENERGY STAR®-qualified refrigerator.

- ENERGY STAR (Version 5.1) models are at least 10% more efficient than the federal standard.
- ENERGY STAR Most Efficient (2023) models must use less than 637 kWh per year for offering with top freezer or be at least 27% more efficient than the federal standard for offerings without top freezer.
- Advanced Tier freezers (ENERGY STAR +5%) are at least 5% more efficient than a correspondent ENERGY STAR model.

Base Case Description

The base case is a federal code compliant refrigerator or refrigerator-freezer.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Household - dwelling or household
Electric Impact Profile ID	DEER:RefgFrzr_HighEff
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	84.52	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-1.14	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,450.80	Link
Base Case Costs ($)	1,755.02	
Incremental Cost ($)	695.78	
Effective Useful Life (years)	13.45	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
Ineligible products for ENERGY STAR refrigerators (10% above federal standard) include: • Keg/beverage centers and wine coolers/chillers. • Refrigerators larger than 7.75 cu.ft. and 36 inches or more in height do not qualify for a compact refrigerator rebate. Ineligible products for ENERGY STAR Most Efficient refrigerators (27% above federal standard) include: • Sub-compact refrigerators, all-refrigerators, and freezers. • Keg/beverage centers and wine coolers/chillers. Ineligible products for ENERGY STAR +5% include: • Sub-compact freezers.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify the refrigerator size, type, and ENERGY STAR tiers.
Important Notes
None

Clothes Dryer, Residential

https://www.caetrm.com/measure/SWAP003/05/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP003-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A residential ENERGY STAR®-certified natural gas, electric, or heat pump (HP) clothes dryer.

- Basic tier is based upon the ENERGY STAR specification for clothes dryers (Version 1.1).
- Advanced tier (ENERGY STAR Most Efficient, ESME) is based upon the ENERGY STAR Most Efficient criteria. For electric heat pump clothes dryers, the CEF is based on lowest efficiency equipment on the 2025 ENERGY STAR Most Efficient list.

Base Case Description

The base case is a federal code compliant clothes dryer, based on the fuel type.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, MFmCmn - Residential Multi-family Common Area, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.02	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	116.26	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-0.31	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,258.81	Link
Base Case Costs ($)	808.21	
Incremental Cost ($)	450.60	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
Eligible clothes dryers must comply with the ENERGY STAR (Basic Tier) and ENERGY STAR Most Efficient (Advanced Tier) classification. Advanced Tier electric clothes dryers must be heat pump clothes dryers. The replacement equipment must be “like for like” (e.g., electric to electric). Fuel substitution is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the clothes dryer meets the applicable ENERGY STAR tiers.
Important Notes
None

Clothes Washer, Residential

https://www.caetrm.com/measure/SWAP004/04/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP004-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A clothes washer that meets the minimum integrated modified energy factor (IMEF) / modified energy factor (MEF) and the maximum integrated water factor (IWF) requirement of the ENERGY STAR® Program Requirements Product Specification for Clothes Washers Version 8.0 or the 2018 ENERGY STAR Most Efficient Recognition Criteria: Clothes Washers.

Washer Type	Loading	Offering	Statewide Measure Offering ID	Measure Offering Description
ENERGY STAR Commercial Clothes Washer, Coin-Operated	Any	MFmCmn Leased	F	ENERGY STAR commercial clothes washer, coin-operated, any loading, MFmCmn leased
ENERGY STAR Commercial Clothes Washer, Coin-Operated	Any	MFmCmn Owned	E	ENERGY STAR commercial clothes washer, coin-operated, any loading, MFmCmn owned
ENERGY STAR Most Efficient Residential Clothes Washer > 2.5 cubic ft	Front	Common	D	ENERGY STAR most efficient residential clothes washer > 2.5 cubic ft, front, common
ENERGY STAR Most Efficient Residential Clothes Washer > 2.5 cubic ft	Front	Dwelling	C	ENERGY STAR most efficient residential clothes washer > 2.5 cubic ft, front, dwelling
ENERGY STAR Residential Clothes Washer	Front	Common	B	ENERGY STAR residential clothes washer, front, common
ENERGY STAR Residential Clothes Washer	Front	Dwelling	A	ENERGY STAR residential clothes washer, front, dwelling
ENERGY STAR Residential Clothes Washer	Top	Common	H	ENERGY STAR residential clothes washer, top, common
ENERGY STAR Residential Clothes Washer	Top	Dwelling	G	ENERGY STAR residential clothes washer, top, dwelling

Base Case Description

The base case is a top-loading or front-loading residential, or commercial clothes washer respective to the measure case that meets the federal and California Appliance Efficiency Regulations (Title 20).

Washer Type	Loading	Offering	Statewide Measure Offering ID	Existing Description	Standard Description
ENERGY STAR Commercial Clothes Washer, Coin-Operated	Any	MFmCmn Leased	F	Standard commercial clothes washer, coin-operated, MFmCmn leased	Standard commercial clothes washer, coin-operated, MFmCmn leased
ENERGY STAR Commercial Clothes Washer, Coin-Operated	Any	MFmCmn Owned	E	Standard commercial clothes washer, coin-operated, MFmCmn owned	Standard commercial clothes washer, coin-operated, MFmCmn owned
ENERGY STAR Most Efficient Residential Clothes Washer > 2.5 cubic ft	Front	Common	D	Clothes washer, Front loading, Weighted Fuel Types, Standard, IMEF =1.29, IWF < 8.4, common	Clothes washer, Front loading, Weighted Fuel Types, Standard, IMEF =1.84, IWF < 4.7, common
ENERGY STAR Most Efficient Residential Clothes Washer > 2.5 cubic ft	Front	Dwelling	C	Clothes washer, Front loading, Weighted Fuel Types, Standard, IMEF =1.29, IWF < 8.4, dwelling	Clothes washer, Front loading, Weighted Fuel Types, Standard, IMEF =1.84, IWF < 4.7, dwelling
ENERGY STAR Residential Clothes Washer	Front	Common	B	Clothes washer, Front loading, Weighted Fuel Types, Standard, IMEF =1.29, IWF < 8.4, common	Clothes washer, Front loading, Weighted Fuel Types, Standard, IMEF =1.84, IWF < 4.7, common
ENERGY STAR Residential Clothes Washer	Front	Dwelling	A	Clothes washer, Front loading, Weighted Fuel Types, Standard, IMEF =1.29, IWF < 8.4, dwelling	Clothes washer, Front loading, Weighted Fuel Types, Standard, IMEF =1.84, IWF < 4.7, dwelling
ENERGY STAR Residential Clothes Washer	Top	Common	H	Clothes washer, Top loading, Weighted Fuel Types, Standard, IMEF = 1.08, IWF <= 9.4, common	Clothes washer, Top loading, Weighted Fuel Types, Standard, IMEF = 1.57, IWF <= 6.5, common
ENERGY STAR Residential Clothes Washer	Top	Dwelling	G	Clothes washer, Top loading, Weighted Fuel Types, Standard, IMEF = 1.08, IWF <= 9.4, dwelling	Clothes washer, Top loading, Weighted Fuel Types, Standard, IMEF = 1.57, IWF <= 6.5, dwelling

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, MFmCmn - Residential Multi-family Common Area, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	113.96	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	11.11	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	3,220.71	
Measure Case Costs ($)	1,220.69	Link
Base Case Costs ($)	897.12	
Incremental Cost ($)	323.57	
Effective Useful Life (years)	10.65	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
Eligible product must meet the minimum criteria of ENERGY STAR® Program Requirements Product Specification for Clothes Washers Version 8.0 or the 2018 ENERGY STAR Most Efficient Recognition Criteria: Clothes Washers ENERGY STAR Residential Clothes Washer >2.5 cubic feet • Volume must be >2.5 and ≤6.0 cu.ft. • IMEF ≥2.06 and IWF ≤4.3 for top-loading • IMEF ≥2.76 and an IWF ≤3.2 for front-loading • Machines that satisfy the ENERGY STAR Connected criteria are allowed an IMEF 5% lower than the minimum qualifying standard. ENERGY STAR Most Efficient Residential Clothes Washer >2.5 cubic feet • Volume must be >2.5 and ≤6.0 cu.ft.. • IMEF ≥2.92 and an IWF ≤3.2. ENERGY STAR Commercial Clothes Washer • Volume must be >1.6 and <8.0 cu.ft.. • MEF J2 ≥2.2 and IWF ≤4.0. • Lease washer must have a minimum term of 5 years and term cannot end prior to 5 years after the qualified measure is installed. **The following products are not eligible:** • Configurations other than a front-loading or top-loading design • Combination washer-dryers and residential clothes washers with a heated drying functionality
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the unit meets the required energy and water efficiencies in the Offering ID table.
Important Notes
The residential energy savings came from DEER. The commercial energy savings were calculated and involved weighted averages of gas and electric fuel clothes dryer and water heater, as well as of front and top loadings.

Ozone Laundry, Commercial

https://www.caetrm.com/measure/SWAP005/04/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP005-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An ozone generator installed on an existing or new commercial laundry clothes washing machine.

Statewide Measure Offering ID	Measure Offering Description
A	Ozone laundry, ozone system added, gas water heat

Base Case Description

A conventional washing machine without an ozone generator, with a hot water boiler that meets the minimum regulated thermal efficiency standards as required by the California Appliance Efficiency Regulations (Title 20).

Statewide Measure Offering ID	Existing Description	Standard Description
A	Commercial laundry, no ozone system, gas water heater	Commercial laundry, no ozone system, gas water heater

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial
Building Type	Com - Commercial
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Proc-lbs - Pounds of material processed
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	36.69	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	2,757.76	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	54.68	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	10.00	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
The washing capacity of each washing machine must be rated at ≤200 lbs. The customer must have a natural gas-fired boiler or natural gas water heater that supplies hot water to the on-premise laundry (OPL) equipment. The ozone laundry system(s) must be a new purchased product and installed with a new or existing commercial washing machine(s). The ozone laundry system(s) must transfer ozone into the water with either the venturi injection or bubble diffusion process. Laundry systems equipped with tunnel washers are not eligible. The nonresidential ozone laundry measure is not applicable in residential or multifamily facilities and coin-operated laundromats.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that existing hot water is supplied by a natural gas boiler. The ozone laundry system must transfer ozone into the water through venturi injection or bubble diffusion.
Important Notes
None

Dishwasher, Residential

https://www.caetrm.com/measure/SWAP006/05/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP006-05

END DATE
4/22/2027

Measure Case and Base Case Description:

Offering ID

A high-efficiency dishwasher meeting the estimated annual energy use (EAEU) ≤240-kWh and water consumption ≤3.2 gallon/cycle tier. The tier specification includes the most efficient dishwasher models available in the U.S that meet the ENERGY STAR® Program Requirements for Residential Dishwashers Version 7.0.

Statewide Measure Offering ID	Measure Offering Description
C	Efficient <= 240 kWh (EAEU), residential dishwasher

Base Case Description

Due to its near 100% market penetration, the base case is an ENERGY STAR version 6.0 eligible residential dishwasher with an EAEU of 270 kWh/year.

Statewide Measure Offering ID	Existing Description	Standard Description
C	Standard residential dishwasher (270 EAEU)	Standard residential dishwasher (270 EAEU)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	22.90	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.49	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	118.25	
Measure Case Costs ($)	1,083.71	Link
Base Case Costs ($)	941.58	
Incremental Cost ($)	142.13	
Effective Useful Life (years)	11.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
The dishwasher must meet ENERGY STAR Program Requirements for Residential Dishwashers (Version 7.0). Compact residential dishwashers and commercial dishwashers are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the unit is ENERGY STAR qualified and meets the efficiency requirement in the Offering ID table.
Important Notes
None

Room Air Conditioner, Residential

https://www.caetrm.com/measure/SWAP007/04/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP007-04

END DATE
5/26/2026

Measure Case and Base Case Description:

Offering ID

The measure case specification is defined by two efficiency tiers based upon the ENERGY STAR® Program Requirements Product Specification for Room Air Conditioners, Version 5.0.

- ENERGY STAR Basic Tier: The unit efficiency meets the ENERGY STAR v5.0 eligibility criteria.
- ENERGY STAR Connected Tier: The connected model offers advanced controls and increased functionality, such as the ability to turn off the unit remotely without using the manufacturer specific operating system when the user is not at home and provides feedback on the energy use of the product.

Room heat pumps (HPs) are considered room air conditioners (ACs) with reverse cycle under federal and state code and under ENERGY STAR; therefore, room HPs are considered as part of this measure.

Tier	Statewide Measure Offering ID	Measure Offering Description
ENERGY STAR Basic Tier	A	Efficient room air conditioner, ENERGY STAR
ENERGY STAR Connected Tier	C	Efficient room air conditioner, ENERGY STAR + connected tier

Base Case Description

Per the ENERGY STAR's 2022 penetration report, the base case is an ENERGY STAR v4.2 qualified room air conditioner unit. This standard practice baseline exceeds federal and state code requirements.

Tier	Statewide Measure Offering ID	Existing Description	Standard Description
ENERGY STAR Basic Tier	A	Standard room air conditioner	Standard room air conditioner
ENERGY STAR Connected Tier	C	Standard room air conditioner	Standard room air conditioner

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Eff_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	97.11	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	803.16	Link
Base Case Costs ($)	692.95	
Incremental Cost ($)	110.21	
Effective Useful Life (years)	9.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
The room AC or HP must be qualified under ENERGY STAR v5.0 or greater. ENERGY STAR Connected Tier offerings must be noted as “Connected Capable” in ENERGY STAR. The California Air Resources Board (CARB) requires refrigerants to have a 100-year global warming potential (GWP) less than 750. Starting from 2025, the U.S. Environmental Protection Agency (EPA) requires a 100-year GWP less than 700 for all newly manufactured product; however, before 2028, higher GWP products can still be purchased. Packaged terminal air conditioners (PTACs), portable air conditioners, room HP models with electric resistance heat as the primary heat source, and dehumidifiers are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the new unit is ENERGY STAR qualified.
Important Notes
None

Room Air Cleaner, Residential

https://www.caetrm.com/measure/SWAP008/04/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP008-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An air cleaner that exceeds the minimum clean air delivery rate (CADR) to watt ratio specification by 30% or 50%, per ENERGY STAR® Room Air Cleaners: Eligibility Criteria Version 2.0.

Tier	Efficiency (CADR/W)	Size	Statewide Measure Offering ID	Measure Offering Description
ENERGY STAR +30%	2.5 CADR/watt	<100 CADR	G	Efficient, room air cleaner, <100 CADR, ENERGY STAR +30% (2.5 CADR/watt)
ENERGY STAR +30%	3.1 CADR/watt	100-150 CADR	H	Efficient, room air cleaner, 100-150 CADR, ENERGY STAR +30% (3.1 CADR/watt)
ENERGY STAR +30%	3.8 CADR/watt	>150 CADR	I	Efficient, room air cleaner, >150 CADR, ENERGY STAR +30% (3.8 CADR/watt)
ENERGY STAR +50%	3.8 CADR/watt	<100 CADR	J	Efficient, room air cleaner, <100 CADR, ENERGY STAR +50% (3.8 CADR/watt)
ENERGY STAR +50%	4.7 CADR/watt	100-150 CADR	K	Efficient, room air cleaner, 100-150 CADR, ENERGY STAR +50% (4.7 CADR/watt)
ENERGY STAR +50%	5.7 CADR/watt	>150 CADR	L	Efficient, room air cleaner, >150 CADR, ENERGY STAR +50% (5.7 CADR/watt)

Base Case Description

Base case specification was based on 2026 federal efficiency standards, which mirror the current minimum efficiency requirements for ENERGY STAR Room Air Cleaners v2.0.

Tier	Size	Efficiency (CADR/W)	Statewide Measure Offering ID	Existing Description	Standard Description
ENERGY STAR +30%	<100 CADR	1.90	G	Standard, air cleaner, <100 CADR	Standard, air cleaner, <100 CADR
ENERGY STAR +30%	>150 CADR	2.90	I	Standard, air cleaner, 150 CADR	Standard, air cleaner, 150 CADR
ENERGY STAR +30%	100-150 CADR	2.40	H	Standard, air cleaner, 100-150 CADR	Standard, air cleaner, 100-150 CADR

Tier	Size	Efficiency (CADR/W)	Statewide Measure Offering ID	Existing Description	Standard Description
ENERGY STAR +50%	<100 CADR	1.90	J	Standard, air cleaner, <100 CADR	Standard, air cleaner, <100 CADR
ENERGY STAR +50%	>150 CADR	2.90	L	Standard, air cleaner, 150 CADR	Standard, air cleaner, 150 CADR
ENERGY STAR +50%	100-150 CADR	2.40	K	Standard, air cleaner, 100-150 CADR	Standard, air cleaner, 100-150 CADR

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:RefgFrzr_HighEff
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	59.80	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-0.96	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	284.86	Link
Base Case Costs ($)	214.09	
Incremental Cost ($)	70.76	
Effective Useful Life (years)	9.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
Eligible products must meet the efficiency (CADR/W) requirements specified in the in the Offering ID table and be on the ENERGY STAR Qualified Product List (QPL).
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Vending and Beverage Merchandise Controller

https://www.caetrm.com/measure/SWAP011/05/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP011-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An occupancy sensor-based control that is installed on existing vending machine or beverage merchandise cooler.

Description	Statewide Measure Offering ID	Measure Offering Description
Cold Vending Machine	E	Cold vending machine controller
Double-Door Beverage Merchandise Cooler	A	Double-door beverage merchandise cooler controller
One-Door Beverage Merchandise Cooler	B	One-door beverage merchandise cooler controller
One-Door Under-counter Beverage Merchandise Cooler	C	One-door under-counter beverage merchandise cooler controller
Snack Vending Machine	F	Snack vending machine controller
Triple-Door Beverage Merchandise Cooler	D	Triple-door beverage merchandise cooler controller

Base Case Description

An existing vending machine or beverage merchandise cooler with no control.

Description	Statewide Measure Offering ID	Existing Description	Standard Description
Cold Vending Machine	E	Existing cold vending machine, no control	Existing cold vending machine, no control
Double-Door Beverage Merchandise Cooler	A	Existing double-door beverage merchandise cooler, no control	Existing double-door beverage merchandise cooler, no control
One-Door Beverage Merchandise Cooler	B	Existing one-door beverage merchandise cooler, no control	Existing one-door beverage merchandise cooler, no control

Description	Statewide Measure Offering ID	Existing Description	Standard Description
One-Door Under-counter Beverage Merchandise Cooler	C	Existing one-door under-counter beverage merchandise cooler, no control	Existing one-door under-counter beverage merchandise cooler, no control
Snack Vending Machine	F	Existing snack vending machine, no control	Existing snack vending machine, no control
Triple-Door Beverage Merchandise Cooler	D	Existing triple-door beverage merchandise cooler, no control	Existing triple-door beverage merchandise cooler, no control

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial, Res - Residential
Building Type	AgOth - Other Agricultural, Asm - Assembly, DMo - Residential Mobile Home, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MFm - Residential Multi-family, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	290.00	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	223.85	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
Existing beverage merchandise coolers must: • Have either glass sliding doors or glass pull-open doors. • Have a self-contained condensing unit. • Be used to maintain temperatures for nonperishable products. Existing cold vending machines must contain only nonperishable bottles and canned beverages. The beverage merchandise controller (BMC) and vending machine controller (VMC) must: • Turn off the lights and the compressor, as applicable, when the surrounding area is unoccupied for 15 minutes to one hour, or if there is no sales traffic for a given period of time. • Periodically power the cooler back on at a maximum increment of every four hours to reasonably maintain product temperatures. The following are not eligible: • Host equipment with integrated low power mode capabilities. • Since energy savings for these measures are calculated based on energy code assumed to be in effect at the time of host equipment manufacturing date (January 1, 2016), the savings are not representative of either beverage merchandise coolers or vending machines that were manufactured under a different and more efficient energy code for maximum daily energy consumption. Therefore, beverage merchandise coolers that were manufactured on or after March 27, 2017, which must be compliant with Title 20 Chapter 4 Article 4 §1605.1 (a) Part 2 Table A-4, are not eligible. Similarly, canned vending machines that were manufactured on or after January 8, 2019, which must be compliant with Title 20 Chapter 4 Article 4 §1605.1 (a) Part 6 Table A-14, are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that existing vending machine is not controlled. Verify that newly installed occupancy sensors are correctly calibrated.
Important Notes
None

Gas Dryer Modulating Valve, Commercial and Multifamily

https://www.caetrm.com/measure/SWAP012/03/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP012-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A modulating valve replacing a non-modulating valve of a natural gas dryer, in a commercial or residential multifamily sector, with appropriate temperature probes installed in the exhaust stack.

Statewide Measure Offering ID	Measure Offering Description
A	Gas dryer modulating valve

Base Case Description

An unmodified natural gas dryer with a single stage valve without the required temperature sensors.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Gas dryer no modulating valve	Gas dryer no modulating valve

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Res - Residential
Building Type	EUn - Education - University, Fhc - Fitness Center - Private Health Club, Htl - Lodging - Hotel, MFm - Residential Multi-family, Mtl - Lodging - Motel, Nrs -Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RtL - Retail - Single-Story Large, RtS - Retail - Small
Building Vintage	Ex - Existing \ Median Age
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg, DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	313.80	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	1,000.00	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	4.67	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
All devices that can reduce the energy consumed by modulating the throughput of natural gas and monitor moisture/temperature of the unit qualify for this measure. A professional installer will be required for all installations of this product as the inlet natural gas line will have to be removed and reattached during installation. The natural gas dryer must not be modified by any technology that would reduce the natural gas consumption beyond the manufacturer specifications. The dryer must have an accessible gas valve assembly and room to install the modulating device in the unit and on the unit exhaust. This measure is not eligible for dryers with a capacity of >200 lbs or <20 lbs. A dryer that makes use of a common or dedicated steam system is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Cooking Appliances, Residential, Fuel Substitution

https://www.caetrm.com/measure/SWAP013/06/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP013-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An electric range with an induction cooktop, a standalone induction cooktop, a fully electric resistance cooking range, or an electric resistance wall oven that meets ENERGY STAR® Program Requirements Product Specification for Residential Electric Cooking Products Version 1.0 requirement, replacing existing natural gas equipment.

Base Case Equipment	Measure Case Equipment	Statewide Measure Offering ID	Measure Offering Description
Natural Gas Cooktop	ENERGY STAR Electric Resistance Cooktop	F	ENERGY STAR qualified electric resistance cooktop replacing gas cooktop
Natural Gas Cooktop	ENERGY STAR Induction Cooktop	E	ENERGY STAR qualified induction cooktop replacing gas cooktop
Natural Gas Range	ENERGY STAR Electric Range with Electric Resistance Cooktop	H	ENERGY STAR qualified electric range with electric resistance cooktop replacing gas range
Natural Gas Range	ENERGY STAR Electric Range with Induction Cooktop	G	ENERGY STAR qualified electric range with induction cooktop replacing gas range
Natural Gas Wall Oven	Electric Resistance Wall Oven	D	Electric resistance wall oven replacing gas wall oven

Base Case Description

A natural gas range, a natural gas wall oven, or a natural gas standalone cooktop.

Base Case Equipment	Measure Case Equipment	Statewide Measure Offering ID	Existing Description	Standard Description
Natural Gas Cooktop	ENERGY STAR Electric Resistance Cooktop	F	Natural gas cooktop with no gas oven	Natural gas cooktop with no gas oven
Natural Gas Cooktop	ENERGY STAR Induction Cooktop	E	Natural gas cooktop with no gas oven	Natural gas cooktop with no gas oven
Natural Gas Range	ENERGY STAR Electric Range with Electric Resistance Cooktop	H	Natural gas cooktop with natural gas oven	Natural gas cooktop with natural gas oven
Natural Gas Range	ENERGY STAR Electric Range with Induction Cooktop	G	Natural gas cooktop with natural gas oven	Natural gas cooktop with natural gas oven

Base Case Equipment	Measure Case Equipment	Statewide Measure Offering ID	Existing Description	Standard Description
Natural Gas Wall Oven	Electric Resistance Wall Oven	D	Natural gas wall oven with no cooktop	Natural gas wall oven with no cooktop

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-195.07	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	15.20	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,725.88	Link
Base Case Costs ($)	1,434.24	
Incremental Cost ($)	1,291.63	
Effective Useful Life (years)	16.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
The installed equipment must be an ENERGY STAR qualified electric cooking range with induction or electric resistance cooktop, ENERGY STAR qualified induction or electric resistance cooktop, or an electric wall oven. The new electric range or cooktop equipment must have either four or five burners.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
This is a fuel substitution measure. The analysis references information derived from the California Residential Appliance Saturation Study (RASS) 2019, the Department of Energy (DOE) Energy Conservation Program: Energy Conservation Standards for Consumer Conventional Cooking Products proposed rule, U.S. Energy Information Administration's (EIA) Residential Energy Consumption Survey (RECS), and ENERGY STAR Residential Electric Cooking Products Specification. HVAC interactive effects were excluded due to reduced kitchen hood consumption.

Heat Pump Clothes Dryer, Residential, Fuel Substitution

https://www.caetrm.com/measure/SWAP014/04/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP014-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The measure case is a heat pump (HP) clothes dryer that meets the minimum combined energy factor (CEF) specification of the ENERGY STAR® Program Requirements Product Specification for Clothes Dryers Version 1.1, replacing natural gas equipment. The minimum CEF was set based on eligibility of all the equipment on the 2025 ENERGY STAR Most Efficient list, while also exceeding CA Title 20 and federal requirement.

Dryer Type	Size	Voltage [VAC]	Offering	Statewide Measure Offering ID	Measure Offering Description
Vented	Compact	120	Dwelling	G	Compact size heat pump clothes dryer, 120 volt, vented, dwelling
Vented	Compact	240	Dwelling	H	Compact size heat pump clothes dryer, 240 volt, vented, dwelling
Vented	Standard	Any	Common Area	I	Standard size heat pump clothes dryer, any volt, vented, common area
Vented	Standard	Any	Dwelling	J	Standard size heat pump clothes dryer, any volt, vented, dwelling
Ventless	Compact	120	Dwelling	K	Compact size heat pump clothes dryer, 120 volt, ventless, dwelling
Ventless	Compact	240	Dwelling	L	Compact size heat pump clothes dryer, 240 volt, ventless, dwelling
Ventless	Standard	Any	Common Area	M	Standard size heat pump clothes dryer, any volt, ventless, common area
Ventless	Standard	Any	Dwelling	N	Standard size heat pump clothes dryer, any volt, ventless, dwelling

Base Case Description

A natural gas clothes dryer that meets the dryer minimum combined energy factor (CEF) specified by the federal and state standards.

Dryer Type	Size	Voltage [VAC]	Offering	Statewide Measure Offering ID	Existing Description	Standard Description
Vented	Compact	120	Dwelling	G	Natural gas clothes dryer	Natural gas clothes dryer
Vented	Compact	240	Dwelling	H	Natural gas clothes dryer	Natural gas clothes dryer
Vented	Standard	Any	Common Area	I	Natural gas clothes dryer	Natural gas clothes dryer
Vented	Standard	Any	Dwelling	J	Natural gas clothes dryer	Natural gas clothes dryer
Ventless	Compact	120	Dwelling	K	Natural gas clothes dryer	Natural gas clothes dryer
Ventless	Compact	240	Dwelling	L	Natural gas clothes dryer	Natural gas clothes dryer
Ventless	Standard	Any	Common Area	M	Natural gas clothes dryer	Natural gas clothes dryer
Ventless	Standard	Any	Dwelling	N	Natural gas clothes dryer	Natural gas clothes dryer

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, MFmCmn - Residential Multi-family Common Area, SFm - Residential Single Family
Building Vintage	Ex - Existing, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-191.40	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	14.64	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	3,114.54	Link
Base Case Costs ($)	1,649.93	
Incremental Cost ($)	1,464.61	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
The installed equipment must be an ENERGY STAR - qualified heat pump clothes dryer that meets or exceeds Version 1.1 minimum efficiency CEF Specification. The product does not need to be qualified as ENERGY STAR Most Efficient. Existing base equipment must be a stand-alone gas dryer.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the new unit is ENERGY STAR qualified.
Important Notes
This is a fuel substitution measure.

Efficient Electric Cooking Appliances, Residential

https://www.caetrm.com/measure/SWAP015/04/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP015-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An ENERGY STAR qualified electric range with induction cooktop, electric range with electric resistance cooktop, induction cooktop, or electric resistance cooktop. Measure case specification is based on integrated annual energy consumption (IAEC) specified by *ENERGY STAR® Program Requirements Product Specification for Residential Electric Cooking Products Version 1.0*.

Base Case Technology	Measure Case Technology	Statewide Measure Offering ID	Measure Offering Description
Standard Electric Cooktop	ENERGY STAR Electric Resistance Cooktop	D	ENERGY STAR qualified electric resistance cooktop replacing standard electric cooktop
Standard Electric Cooktop	ENERGY STAR Induction Cooktop	C	ENERGY STAR qualified induction cooktop replacing standard electric cooktop
Standard Electric Range	ENERGY STAR Electric Range with Electric Resistance Cooktop	F	ENERGY STAR qualified electric range with electric resistance cooktop replacing standard electric range
Standard Electric Range	ENERGY STAR Electric Range with Induction Cooktop	E	ENERGY STAR qualified electric range with induction cooktop replacing standard electric range

Base Case Description

A standard efficiency electric range or a standard efficiency standalone electric cooktop. Base case specifications were informed by the 2019 California Residential Appliance Saturation Study (RASS).

Base Case Technology	Measure Case Technology	Statewide Measure Offering ID	Existing Description	Standard Description
Standard Electric Cooktop	ENERGY STAR Electric Resistance Cooktop	D	Standard electric cooktop	Standard electric cooktop
Standard Electric Cooktop	ENERGY STAR Induction Cooktop	C	Standard electric cooktop	Standard electric cooktop
Standard Electric Range	ENERGY STAR Electric Range with Electric Resistance Cooktop	F	Standard electric range	Standard electric range

Base Case Technology	Measure Case Technology	Statewide Measure Offering ID	Existing Description	Standard Description
Standard Electric Range	ENERGY STAR Electric Range with Induction Cooktop	E	Standard electric range	Standard electric range

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	21.18	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,943.18	Link
Base Case Costs ($)	1,219.70	
Incremental Cost ($)	723.48	
Effective Useful Life (years)	16.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
Installed equipment must: • Be ENERGY STAR-qualified • Have four or five burners. Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
For offerings with ranges, both measure and base case have electric resistance oven components; ovens efficiencies are equivalent and are not included in the savings calculations. The analysis references information derived from the 2019 California Residential Appliance Saturation Study (RASS), the Department of Energy (DOE) Energy Conservation Program: Energy Conservation Standards for Consumer Conventional Cooking Products proposed rule, U.S. Energy Information Administration's (EIA) Residential Energy Consumption Survey (RECS), and ENERGY STAR Residential Electric Cooking Products Specification. HVAC interactive effects are excluded due to reduced kitchen hood consumption.

Oven, Gas, Residential

https://www.caetrm.com/measure/SWAP017/04/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
1/1/2026

VERSION
SWAP017-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A residential gas oven model that performed highest in both preheat energy consumption and cooking energy efficiency, based on SoCalGas's (SCG) Food Service Testing Lab and ovens tested in the *2019 Residential Oven Performance and Energy Comparison Study* conducted for SCG by Frontier Energy.

Oven Type	Statewide Measure Offering ID	Measure Offering Description
Range	A	High efficiency residential range gas oven: preheat energy consumption <= 2200 Btu and cooking efficiency >= 30%
Wall	B	High efficiency residential wall gas oven: preheat energy consumption <= 1800 Btu and cooking efficiency >= 30%

Base Case Description

A residential gas oven that has lower cooking efficiency or higher preheat consumption than the measure case threshold.

Oven Type	Statewide Measure Offering ID	Existing Description	Standard Description
Range	A	Standard efficiency residential gas oven: preheat energy consumption > 2,200 Btu or cooking efficiency < 30%	Standard efficiency residential gas oven: preheat energy consumption > 2,200 Btu or cooking efficiency < 30%
Wall	B	Standard efficiency wall residential gas oven with preheat energy consumption > 1800 Btu or cooking efficiency < 30%	Standard efficiency wall residential gas oven with preheat energy consumption > 1800 Btu or cooking efficiency < 30%

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-1.89	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	1.80	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,234.50	Link
Base Case Costs ($)	915.00	
Incremental Cost ($)	319.50	
Effective Useful Life (years)	13.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
The measure is limited to gas ovens located underneath standalone ranges, slide-in gas ranges, and wall ovens. All residential ovens must be tested by an ISO 17025-accredited laboratory using ASTM F1496. The following are not eligible: • Ovens with a cavity capacity <3 cu.ft. for standalone range oven types • Gas ranges with electric ovens • Commercial ovens
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Portable Air Conditioner and Heat Pump, Residential

https://www.caetrm.com/measure/SWAP020/01/

USE CATEGORY
AP - Appliance or Plug Load

EFFECTIVE START DATE
10/1/2023

VERSION
SWAP020-01

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A portable air-conditioner (AC) or heat pump (HP) that exceeds the combined energy efficiency ratio (CEER) requirements of California Appliance Efficiency Regulations (Title 20) by ≥5% and uses a refrigerant, listed in the US Environmental Protection Agency (EPA) Significant New Alternatives Program (SNAP), with ≤1000 global warming potential (GWP). Some offerings require connected controls.

Measure Case Equipment	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
Portable Air Conditioners	NC	A	Efficient portable air conditioner, CEER 5% greater than T20 standard
Portable Air Conditioners	NR	A	Efficient portable air conditioner, CEER 5% greater than T20 standard
Portable Air Conditioners with Connected Controls	NC	B	Efficient portable air conditioner with connected controls, CEER 5% greater than T20 standard
Portable Air Conditioners with Connected Controls	NR	B	Efficient portable air conditioner with connected controls, CEER 5% greater than T20 standard
Portable Heat Pumps	NC	C	Efficient portable heat pump, CEER 5% greater than T20 standard
Portable Heat Pumps	NR	C	Efficient portable heat pump, CEER 5% greater than T20 standard
Portable Heat Pumps with Connected Controls	NC	D	Efficient portable heat pump with connected controls, CEER 5% greater than T20 standard
Portable Heat Pumps with Connected Controls	NR	D	Efficient portable heat pump with connected controls, CEER 5% greater than T20 standard

Base Case Description

A portable AC and HP that meets Title 20 minimum CEER for the seasonal adjusted cooling capacity (SACC).

Measure Case Equipment	MeasAppType	Statewide Measure Offering ID	Existing Case Description	Standard Case Description
Portable Air Conditioners	NC	A	Home with no HVAC	Standard portable air conditioner, T20 CEER

Measure Case Equipment	MeasAppType	Statewide Measure Offering ID	Existing Case Description	Standard Case Description
Portable Air Conditioners	NR	A	Standard portable air conditioner, T20 CEER	Standard portable air conditioner, T20 CEER
Portable Air Conditioners with Connected Controls	NC	B	Home with no HVAC	Standard portable air conditioner, T20 CEER
Portable Air Conditioners with Connected Controls	NR	B	Standard portable air conditioner, T20 CEER	Standard portable air conditioner, T20 CEER
Portable Heat Pumps	NC	C	Home with no HVAC	Standard portable heat pump, T20 CEER
Portable Heat Pumps	NR	C	Standard portable heat pump, T20 CEER	Standard portable heat pump, T20 CEER
Portable Heat Pumps with Connected Controls	NC	D	Home with no HVAC	Standard portable heat pump, T20 CEER
Portable Heat Pumps with Connected Controls	NR	D	Standard portable heat pump, T20 CEER	Standard portable heat pump, T20 CEER

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Eff_AC, DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.03	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	43.35	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	658.26	Link
Base Case Costs ($)	519.87	
Incremental Cost ($)	138.40	
Effective Useful Life (years)	9.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWAP_Summary.xlsx

Others:

Program Exclusions
The following eligibility requirements apply: • For “Connected Controls” offerings, the product should have some ability to wirelessly connect to a smart home system (Alexa, Google Home, Apple Home, etc.), website, or mobile phone application. There are no specific requirements for demand response enabled controls. • The portable AC/HP must use an EPA SNAP listed refrigerant with a 100-year GWP ≤1000. • The portable AC/HP must be UL certified for relevant UL safety standards by a Nationally Recognized Testing Laboratory (NRTL). • The portable HP must not use electric resistance heat as the primary heating source. • Both single-duct and dual-duct products are eligible, as long as they meet all other product requirements.
Quality Assurance: Design, Installation, Commissioning, and Operation
The minimum qualifying measure case CEER varies by SACC and should be confirmed for each product. Alternatively, the qualifying for a specific product can be found by multiplying the value in the "Combined Energy Efficiency Ratio (CEER) in Btu/Wh Standard" column from the Title 20 appliance database qualifying product list by 105% and rounding to nearest tenth.
Important Notes
This is a POU-only measure; this measure package has not been reviewed and approved by the California Public Utilities Commission (CPUC) but has been affirmed by the California Technical Forum.

Greenhouse Heat Curtain

https://www.caetrm.com/measure/SWBE001/05/

USE CATEGORY
BE - Building Envelope

EFFECTIVE START DATE
1/1/2026

VERSION
SWBE001-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a single-layer heat curtain in a greenhouse area in which a heat curtain was not present or functional.

Greenhouse Material	Statewide Measure Offering ID	Measure Offering Description
Double layer polyethylene with IR	A	Heat curtain installed in double layer polyethylene with IR greenhouse
Single layer polycarbonate	B	Heat curtain installed in single layer polycarbonate greenhouse

Base Case Description

Greenhouse area without any heat curtains or with nonfunctional heat curtains.

Greenhouse Material	Statewide Measure Offering ID	Existing Description	Standard Description
Double layer polyethylene with IR	A	Hoop house greenhouse with double layer polyethylene covering	Hoop house greenhouse with double layer polyethylene covering
Single layer polycarbonate	B	Ridge and furrow greenhouse with single layer polycarbonate covering	Ridge and furrow greenhouse with single layer polycarbonate covering

Applicable Parameters:

Parameters	Labels
Measure Application Type	BW - Building Weatherization, NC - New Construction
Sector	Ag - Agricultural
Building Type	GHs - Greenhouse
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Area-ft2-BA - square feet of Building area
Electric Impact Profile ID	DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	0.41	Link
Standard - Gas Savings (therm/yr)	0.41	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	0.84	Link
Base Case Costs ($)	0.00	
Incremental Cost ($)	0.84	
Effective Useful Life (years)	5.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWBE_Summary.xlsx

Others:

Program Exclusions
Eligible products must meet the following requirements: • Must be a single-layer interior curtain installed for heat retention. • Must be installed in a gas-heated greenhouse facility. • The facility must be a greenhouse with the primary purpose of agricultural use. • The heat curtain must be a new curtain installed where none previously existed or is no longer functional. • The heat curtain must be installed above the conditioned area where the gas heat source provides hot air to plant and seed species. • The heat curtain must have a natural gas savings rating that meets or exceeds 40%. • The heat curtain must have a warranty/product life of five years. • The installation must allow the curtain to be automatically or manually moved into place. The square footage of the new heat curtain cannot exceed the square footage of the greenhouse floor. Any overhang and overlap of curtain material cannot be included in the square footage calculation.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
The analysis assumed that the thermal curtains are deployed during nighttime hours, and open during daytime hours.

Greenhouse Infrared Film

https://www.caetrm.com/measure/SWBE002/05/

USE CATEGORY
BE - Building Envelope

EFFECTIVE START DATE
1/1/2026

VERSION
SWBE002-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A greenhouse roof with infrared (IR) inhibiting film additive on the inflated double polyethylene roof

Statewide Measure Offering ID	Measure Offering Description
A	IR film installed on double layer polyethylene greenhouse

Base Case Description

A greenhouse with an inflated double polyethylene roof without an infrared (IR) film additive.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Hoop house greenhouse with double layer polyethylene covering	Hoop house greenhouse with double layer polyethylene covering

Applicable Parameters:

Parameters	Labels
Measure Application Type	BW - Building Weatherization, NC - New Construction
Sector	Ag - Agricultural
Building Type	GHs - Greenhouse
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Area-ft2 - square feet of technology
Electric Impact Profile ID	DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	0.23	Link
Standard - Gas Savings (therm/yr)	0.23	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	0.11	Link
Base Case Costs ($)	0.09	
Incremental Cost ($)	0.02	
Effective Useful Life (years)	5.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWBE_Summary.xlsx

Others:

Program Exclusions
The installation of infrared (IR) film must meet the following requirements: • The IR film must be installed in a gas-heated greenhouse facility. • The facility must be a greenhouse with the primary purpose of agricultural use. • The film must be infrared, anti-condensate, polyethylene plastic with a minimum thickness of 0.006in. • The IR film shall not be installed on the walls of the greenhouse.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
Savings were adopted from DEER and vary by Building HVAC.

Ceiling Insulation, Residential

https://www.caetrm.com/measure/SWBE006/04/

USE CATEGORY
BE - Building Envelope

EFFECTIVE START DATE
1/1/2026

VERSION
SWBE006-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The measure case is the installation of ceiling insulation, defined by the R-value, on top of vintage specific ceiling insulation.

Insulation R-Value	Statewide Measure Offering ID	Measure Offering Description
R-11	A	Ceiling - add R-11 batts on top of vintage-specific existing insulation
R-19	B	Ceiling - add R-19 batts on top of vintage-specific existing insulation
R-30	C	Ceiling - add R-30 batts on top of vintage-specific existing insulation
R-38	D	Ceiling - add R-38 batts on top of vintage-specific existing insulation
R-44	E	Ceiling - add R-44 batts on top of vintage-specific existing insulation
R-60	F	Ceiling - add R-60 batts on top of vintage-specific existing insulation

Base Case Description

The base case is defined as the customer's existing insulation, specified in the Database for Energy Efficient Resources (DEER) model.

Insulation R-Value	Statewide Measure Offering ID	Existing Description	Standard Description
R-11	A	Customer existing insulation	Customer existing insulation
R-19	B	Customer existing insulation	Customer existing insulation
R-30	C	Customer existing insulation	Customer existing insulation
R-38	D	Customer existing insulation	Customer existing insulation
R-44	E	Customer existing insulation	Customer existing insulation
R-60	F	Customer existing insulation	Customer existing insulation

Applicable Parameters:

Parameters	Labels
Measure Application Type	BW - Building Weatherization
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Area-ft2 - square feet of technology
Electric Impact Profile ID	DEER:Res_BldgShell_Ins
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.25	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.01	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	2.20	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	30.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWBE_Summary.xlsx

Others:

Program Exclusions
None
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify preexisting insulation levels.
Important Notes
Savings were adopted from DEER and vary by Building HVAC.

Wall Insulation, Residential

https://www.caetrm.com/measure/SWBE007/04/

USE CATEGORY
BE - Building Envelope

EFFECTIVE START DATE
1/1/2026

VERSION
SWBE007-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The measure case is the installation of wall insulation, defined by the R-value, into a wall with no existing insulation.

Statewide Measure Offering ID	Measure Offering Description
A	Residential wall blow-in R-0 to R-13 insulation

Base Case Description

The base case is defined as an existing 2x4 wall with no existing insulation.

Statewide Measure Offering ID	Existing Description	Standard Description
A	2x4 wall with no existing insulation	2x4 wall with no existing insulation

Applicable Parameters:

Parameters	Labels
Measure Application Type	BW - Building Weatherization
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Area-ft2 - square feet of technology
Electric Impact Profile ID	DEER:Res_BldgShell_Ins
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	1.42	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.07	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	1.70	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	30.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWBE_Summary.xlsx

Others:

Program Exclusions
This measure is applicable only in pre-1988 vintage in all residential single-family, multifamily and double wide mobile home dwelling units. Residential wall insulation became required by Title 24 new construction code in 1988. Replacement of or addition to existing wall insulation is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Ensure that preexisting walls have no insulation. Verify that the wall has conditioned space on one side and unconditioned space on the other side. Verify the installation insulation R-value. Verify that installation of insulation is for a building built before 1988.
Important Notes
None

Deeply Buried Ducts, Residential

https://www.caetrm.com/measure/SWBE010/01/

USE CATEGORY
BE - Building Envelope

EFFECTIVE START DATE
4/6/2023

VERSION
SWBE010-01

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The measure case is the combination of the following retrofits for an existing single-family home with central air conditioning and/or furnace with air distribution ducts located in the vented attic space:

- Repair and seal the existing air distribution ducts, unhanging them from the rafters before sealing, shorten and straighten them where possible
- Seal the attic plane to reduce the infiltration from the attic to the conditioned space below
- Increase the overall level of attic insulation such that the air distribution ducts are deeply buried under loose-fill insulation to a level at least 4 inches above the top of the ducts without creating visible insulation mounds (i.e., achieve a uniform level of loose-fill insulation across the attic).

Base Case Leakage Tier	Statewide Measure Offering ID	Measure Offering Description
High	A	Duct seal high to low (40% to 12%), air seal attic plane, lower and bury ducts in insulation
Medium	B	Duct seal medium to low (24% to 12%), air seal attic plane, lower and bury ducts in insulation

Base Case Description

The base case is defined as a single family home with a "high" or "medium" duct leakage rate, and the customer's existing insulation, if any.

Base Case Leakage Tier	Statewide Measure Offering ID	Existing Description	Standard Description
High	A	Existing insulation, duct leakage at or above 40%	Existing insulation, duct leakage at or above 40%
Medium	B	Existing insulation, duct leakage 24% to 12%	Existing insulation, duct leakage 24% to 12%

Applicable Parameters:

Parameters	Labels
Measure Application Type	BW - Building Weatherization
Sector	Res - Residential
Building Type	SFm - Residential Single Family
Building Vintage	Old - Old
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install
Normalized Unit	Area-ft2 - square feet of technology
Electric Impact Profile ID	DEER:Res_BldgShell_Ins
Gas Impact Profile ID	WinterOnly

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.29	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.04	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	2.52	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	19.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWBE_Summary.xlsx

Others:

Program Exclusions
This measure does not consider either the conversion of a vented attic into a non-vented attic or moving the existing air distribution ducts into conditioned space. Ducts must be located in a ventilated attic with leakage no greater than 12 percent of system flow. Single family dwellings without air distribution ducts located in a vented attic are excluded. **Duct Retrofit:** All duct sealing materials and methods shall comply with Underwriters Laboratories, Inc. Standard for Air Ducts, UL181-1972. **Ceiling Plane Air Sealing:** Preference shall be given to flexible materials such as mastics manufactured for the purpose of building enclosure sealing. Mastic materials exhibit greater durability than air sealing foam, as foam does not expand and contract with the building enclosure as readily as materials that maintain flexibility over time. Foam may be used for large gaps, backfill, or other circumstances deemed more practical than flexible materials. **Attic Insulation:** All attic insulation materials shall comply with Title 24 Section 110.8(d) & Section 150.0(a). To be consistent with Duct Sealing measure package, this measure is only applicable in all residential single family homes built in or prior to 2006 and have a duct system in a vented attic space capable of achieving a R-60 insulation level.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Efficient Doors, Residential

https://www.caetrm.com/measure/SWBE013/01/

USE CATEGORY
BE - Building Envelope

EFFECTIVE START DATE
1/1/2026

VERSION
SWBE013-01

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A new exterior door installed in a residential building that is Title 24 compliant and ENERGY STAR® Residential Windows, Doors, and Skylights Version 7.0 qualified (U-factor ≤ 0.17; air leakage ≤ 0.3 cfm/sq.ft.). This measure is only applicable to opaque swinging single doors, opening from a conditioned space in a dwelling unit out to an exterior space.

Measure	Statewide Measure Offering ID	Measure Offering Description
Efficient Door	A	Efficient exterior swinging single door, opaque

Base Case Description

An existing exterior swinging door with a representative U-factor of 1.45 Btu/(hr-sq.ft.-°F) in single family and mobile homes and 0.82 Btu/(hr-sq.ft.-°F) in multifamily buildings, which aligns with the thermal properties used in the DEER2024 residential prototypes.

Measure	Statewide Measure Offering ID	Existing Description	Standard Description
Efficient Door	A	Existing exterior swinging single door	

Applicable Parameters:

Parameters	Labels
Measure Application Type	BW - Building Weatherization
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_BldgShell_Ins
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	63.13	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	3.73	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	992.26	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWBE_Summary.xlsx

Others:

Program Exclusions
Installed products must be ENERGY STAR Residential Windows, Doors, and Skylights Version 7.0 qualified doors under the Swinging Entry Door (Single) product category, per Measure Case Description. Only fully opaque doors are eligible. Doors with any glazing are excluded. Any existing swinging exterior door between a conditioned indoor space and an unconditioned exterior space is eligible. Garage door opening from conditioned indoor space to unconditioned indoor space is not eligible. Sliding doors are not eligible. Since the replacement of the door requires sealing per Title 24, this measure cannot be combined with door sealing or door sweep measures (SWBE014) for additional claimed savings.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that unit meets the eligibility requirement (characteristic and rating) in the Measure Case Description.
Important Notes
None

Door Sweeps and Door Sealing, Residential

https://www.caetrm.com/measure/SWBE014/01/

USE CATEGORY
BE - Building Envelope

EFFECTIVE START DATE
1/1/2026

VERSION
SWBE014-01

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a door sweep and/or door sealing for exterior doors.

Measure	Door Type	Statewide Measure Offering ID	Measure Offering Description
Door Sealing	Double Door	A	Install door sealing/weatherstripping for an existing exterior double door
Door Sealing	Single Door	B	Install door sealing/weatherstripping for an existing exterior single door
Door Sweep	Double Door	C	Install a door sweep on an existing exterior double door
Door Sweep	Single Door	D	Install a door sweep on an existing exterior single door

Base Case Description

An existing exterior door without a door sweep and/or door sealing in residential buildings.

Measure	Door Type	Statewide Measure Offering ID	Existing Description	Standard Description
Door Sealing	Double Door	A	Existing exterior double door without door sealing	
Door Sealing	Single Door	B	Existing exterior single door without door sealing	
Door Sweep	Double Door	C	Existing exterior double door without a door sweep	
Door Sweep	Single Door	D	Existing exterior single door without a door sweep	

Applicable Parameters:

Parameters	Labels
Measure Application Type	BW - Building Weatherization
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_BldgShell_Ins
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	52.17	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	3.28	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	214.90	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWBE_Summary.xlsx

Others:

Program Exclusions
Only door sweeps and door sealing added to existing swinging exterior doors are eligible. An exterior door is defined as the door between a conditioned indoor space and an exterior space. • Garage door opening from conditioned indoor space to unconditioned indoor space is not eligible. • Replacement of existing door sweep or door sealing is not eligible. • Sliding doors are not eligible. This measure is not eligible when combined with “SWBE013 Efficient Doors, Residential” for the same door(s). Measure is not eligible if installed in conjunction with a new exterior door, as exterior door sealing is required by Title 24. Door sealing must be applied to all three sides (top and two vertical sides) of the door to be eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
Door sealing and door sweeping can be implemented separately or together, and the savings can be combined for the latter case. The normalizing unit for this measure package is per door treated. The following Building Type - Climate Zone - Building HVAC permutations are excluded due to having negative savings: • DMo - CZ06 - rDXHP • DMo - CZ07 - rDXHP • DMo - CZ09 - rDXHP

VFD Retrofit for Air Compressor

https://www.caetrm.com/measure/SWCA001/05/

USE CATEGORY
CA - Compressed Air

EFFECTIVE START DATE
1/1/2026

VERSION
SWCA001-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A variable speed drive (VSD) on an existing rotary screw air compressor with rated capacity ≥5 hp (4 kW) and <25 hp (18 kW). Due to California Building Energy Efficiency Requirements (Title 24), measure offerings are not specified for compressor air systems ≥25 hp.

Rated Horsepower Range (hp)	Statewide Measure Offering ID	Measure Offering Description
15 to < 25	B	Air compressor VFD, 15 to < 25 hp (existing compressor motor hp)
5 to < 15	A	Air compressor VFD, 5 to < 15 hp (existing compressor motor hp)

Base Case Description

The base case is defined as an existing rotary screw compressor, with rated capacity ≥5 hp (4 kW) and <25 hp (18 kW), using load/unload controls. For systems with multiple compressors, the base case compressor operates as a trim compressor and the online capacity of the compressed air system must be <25 hp (18 kW).

Rated Horsepower Range (hp)	Statewide Measure Offering ID	Existing Description	Standard Description
15 to < 25	B	Air compressor, load/unload control, 15 to < 25 hp	Air compressor, load/unload control, 15 to < 25 hp
5 to < 15	A	Air compressor, load/unload control, 5 to < 15 hp	Air compressor, load/unload control, 5 to < 15 hp

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Hsp - Health/Medical - Hospital, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, OfS - Office - Small, RtL - Retail - Single-Story Large
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Rated-HP - nameplate HP
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.12	Link
Standard - Peak Demand Reduction (kW)	0.12	
Existing - Electric Savings (kWh/yr)	386.80	Link
Standard - Electric Savings (kWh/yr)	384.67	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,218.54	Link
Base Case Costs ($)	1,249.89	
Incremental Cost ($)	362.35	
Effective Useful Life (years)	13.00	Link
Remaining Useful Life (years)	4.33	

Streamlined Permutations: SWCA_Summary.xlsx

Others:

Program Exclusions
The existing compressor shall meet the following eligibility requirements: • Must be a rotary screw compressor • Must have a horsepower rating ≥5 hp and <25 hp (18 kW) • Must operate in a stand-alone capacity or as a trim compressor (i.e., not base loaded in a multiple compressor system) • Must be permanently installed • Customer compressed air pressure and flow rate must not be modified. Customer baseline hours of operation must remain the same • Customer must comply with Title 24: Section 120.6(e). Mandatory Requirements for Compressed Air Systems. Portable compressors and cyclic refrigerated dryers are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Ensure that the VSD is installed correctly.
Important Notes
None

Anti-Sweat Heater Controls

https://www.caetrm.com/measure/SWCR001/05/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR001-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

Anti-sweat heater (ASH) controls for a reach-in low-temperature (LT) display case (freezer, case temperature <32°F) or a medium-temperature (MT) display case (cooler, case temperature ≥32°F).

Case Temperature	Statewide Measure Offering ID	Measure Offering Description
LT	A	Display case with ASH controls, LT
MT	B	Display case with ASH controls, MT

Base Case Description

A standard, fixed anti-sweat heater (ASH) for reach-in low-temperature or medium-temperature display case that operates at full power, i.e., 100% of the time.

Case Temperature	Statewide Measure Offering ID	Existing Description	Standard Description
LT	A	Display case without ASH controls, low temperature	Display case without ASH controls, low temperature
MT	B	Display case without ASH controls, medium temperature	Display case without ASH controls, medium temperature

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial
Building Type	Gro - Grocery, Htl - Lodging - Hotel, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Len-ft - length (feet)
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	330.03	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	-1.29	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	92.47	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	4.00	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
The ASH controls must be installed on either an existing reach-in low-temperature or an existing medium-temperature display case that have an existing ASH operating at 100% power continuously. The existing ASH must not have any existing ASH controls, including non-operable or broken, installed that allow for varying ASH power. The ASH control product must have humidity-sensing, dew point based, or moisture/conductivity sensing controls that reduce the amount of power supplied to the heaters as the store dew point (DP) temperature decreases. Both dew point and conductivity sensing controls have been shown to result in higher savings than humidity-sensing controls used to model the savings for this measure. Therefore, these controls are considered eligible because claimed savings are conservative. This measure applies to buildings with single and multiplex compressor systems. The energy savings were modeled using multiplex refrigeration systems, which are more efficient than single compressor systems. Since single compressor systems use more energy, adding ASH controls would consequently save more energy, so it is assumed that the generated energy savings are conservatively applicable to display cases with single-compressor systems. This measure is applicable for grocery, lodging (hotel), restaurant (fast-food), restaurant (sit-down), retail (multistory large), retail (single-story large), and retail (small) buildings since the use of ASH controls is most common in these building types. Only buildings with electric cooling and natural gas heating HVAC systems are eligible. To avoid double-counting savings, this measure cannot be used in conjunction with: • SWCR015 and/or SWCR002, which include the new refrigeration display case with doors offerings. • SWCR002, which includes the low/no anti-sweat heat on low-temperature display case offerings. • Existing medium temperature and low temperature refrigeration display cases without anti-sweat heaters in them.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Low-Temperature Display Case Doors With No Anti-Sweat Heaters

https://www.caetrm.com/measure/SWCR002/05/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR002-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The replacement of standard low-temperature (LT) (freezer, case temperature <32°F) display case doors with special display case glass doors that have no anti-sweat heaters (ASHs). The ASH are eliminated but the heater on the case frame and/or mullion of the cases continues to operate.

Description	Statewide Measure Offering ID	Measure Offering Description
No ASH LT Display Case Doors	B	Refrigerated display case glass doors with no anti-sweat heaters (ASHs) replacing standard low-temperature display case doors that have ASHs

Base Case Description

The existing low-temperature, reach-in display case equipped with standard glass doors with anti-sweat heaters (ASH) and humidity-based ASH control.

Description	Statewide Measure Offering ID	Existing Description	Standard Description
No ASH LT Display Case Doors	B	Low-temperature reach-in display cases equipped with standard ASH glass doors	Low-temperature reach-in display cases equipped with standard ASH glass doors

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	Gro - Grocery, Htl - Lodging - Hotel, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Len-ft - length (feet)
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	91.90	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-0.42	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	704.84	Link
Base Case Costs ($)	516.07	
Incremental Cost ($)	188.77	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
The installation must meet the following requirements: • The existing display case must be a freezer. The existing door must be a standard glass door of a low-temperature reach-in display case that has ASH. The energy savings were calculated assuming an existing system with ASH controls installed, and therefore can conservatively be applied to existing case systems that do not have ASH controls. • The new replacement door must not have ASH on the door itself (i.e. door glass or door frame). The case frame and/or mullion may continue to have heaters. • The replacement door must have some kind of high efficiency technology including, but not limited to, double-pane glass, triple-pane glass, high efficiency glass, heat-reflective treatment, gas-fill, condensation resistant coatings, or advanced gasket and rail designs that prevent condensation on the door, such that ASH is not required on the door itself. • Some efficient door products may come as a package of door and case frame which helps to facilitate sealing and insulation to further reduce infiltration and condensation when the door is closed. These types of door and case frame system products are eligible for this measure package as long as the other eligibility requirements described herein are met. • This measure applies to buildings with single and multiplex compressor systems. The energy savings were modeled using multiplex refrigeration systems, which are more efficient than single compressor systems. Since single compressor systems use more energy, adding ASH controls would consequently save more energy, so it is assumed that the generated energy savings are conservatively applicable to display cases with single-compressor systems. This measure is applicable for grocery, lodging (hotel), restaurant (fast-food), restaurant (sit-down), retail (multistory large), retail (single-story large), and retail (small) buildings, since the use of low-temperature display cases is most common in these building types. Only buildings with electric cooling and natural gas heating HVAC systems are eligible. To avoid double-counting savings, measure cannot be used in conjunction with SWCR001.
Quality Assurance: Design, Installation, Commissioning, and Operation
The width of the new door itself measured in linear feet should be used for the incentivized length for claims.
Important Notes
None

Fan Motor Retrofit for a Refrigerated Display Case

https://www.caetrm.com/measure/SWCR003/04/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR003-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A new high efficiency electronically commutated permanent magnet direct current (ECM) or permanent magnet synchronous alternating current (PMS) motor/fan assembly for an evaporator in a low-temperature (freezer, case temperature <32°F) or a medium-temperature (cooler, case temperature ≥32°F) refrigerated display case. An assembly with one motor, fan blades, and housing are treated the same as a bare motor.

Equipment Type	Motor Replacement	Statewide Measure Offering ID	Measure Offering Description
Cooler (MT)	PSC to ECM	A	EC motor replacing PSC motor, MT
Cooler (MT)	PSC to PMS	E	PMS motor replacing PSC motor/blades, MT
Cooler (MT)	SHP to ECM	C	EC motor replacing SHP motor, MT
Cooler (MT)	SHP to PMS	G	PMS motor replacing SHP motor/blades, MT
Freezer (LT)	PSC to ECM	B	EC motor replacing PSC motor, LT
Freezer (LT)	PSC to PMS	F	PMS motor replacing PSC motor/blades, LT
Freezer (LT)	SHP to ECM	D	EC motor replacing SHP motor, LT
Freezer (LT)	SHP to PMS	H	PMS motor replacing SHP motor/blades, LT

Base Case Description

The existing equipment may be an existing low efficiency shaded pole (SHP) or permanent split capacitor (PSC) evaporator fan motor. The industry standard practice equipment is defined as an equivalent size evaporator fan with an EC motor, determined on a survey findings reported in ET17SCE8020 study.

Equipment Type	Motor Replacement	Statewide Measure Offering ID	Existing Description	Standard Description
Cooler (MT)	PSC to ECM	A	Display case evap fan motor - PSC, MT	Display case evap fan motor - ECM, MT
Cooler (MT)	PSC to PMS	E	Display case evap fan motor - PSC, MT	Display case evap fan motor - ECM, MT
Cooler (MT)	SHP to ECM	C	Display case evap fan motor - SHP, MT	Display case evap fan motor - ECM, MT
Cooler (MT)	SHP to PMS	G	Display case evap fan motor - SHP, MT	Display case evap fan motor - ECM, MT

Equipment Type	Motor Replacement	Statewide Measure Offering ID	Existing Description	Standard Description
Freezer (LT)	PSC to ECM	B	Display case evap fan motor - PSC, LT	Display case evap fan motor - ECM, LT
Freezer (LT)	PSC to PMS	F	Display case evap fan motor - PSC, LT	Display case evap fan motor - ECM, LT
Freezer (LT)	SHP to ECM	D	Display case evap fan motor - SHP, LT	Display case evap fan motor - ECM, LT
Freezer (LT)	SHP to PMS	H	Display case evap fan motor - SHP, LT	Display case evap fan motor - ECM, LT

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement
Sector	Com - Commercial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.53	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	396.38	Link
Standard - Electric Savings (kWh/yr)	57.52	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	125.64	Link
Base Case Costs ($)	128.47	
Incremental Cost ($)	-2.83	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
The installation must meet the following requirements: • The motor is installed as an evaporator fan motor in a refrigerated display case. • The new motor is the available product most closely matched to the original motor's speed and shaft output power (i.e., “equivalent size”). • The refrigerated display case may be a low-temperature or a medium-temperature. • The motor must be described as a low-power or high-efficiency model by the manufacturer. This measure is applicable in conditioned spaces. To avoid double-counting savings, this measure cannot be used in conjunction with SWAP011, SWCR002, SWCR018, SWCR019, SWCR021, and SWCR020.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify the motor type and the refrigerated equipment.
Important Notes
None

Floating Head Pressure Controls, Multiplex

https://www.caetrm.com/measure/SWCR007/04/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2024

VERSION
SWCR007-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

Installation of a floating head pressure control, which set a minimum saturated condensing temperature (SCT) that follows the ambient (dry-bulb, Tdb) temperature for an air-cooled condenser or the wet bulb (Twb) temperature for an evaporatively-cooled condenser at the specified temperature difference (TD), in a multiplex refrigeration system to lower the compressor discharge pressure when weather permitted, effectively reducing the compressor energy consumption. The condenser system also includes a back-flood control setpoint (BSC) of 68°F that controls the temperature at or above which liquid refrigerant is back-flooded to (or retained in) the condenser, which increases the condenser pressure and lowers the compressor discharge pressure.

Condenser Type	Condenser Fan Control	Statewide Measure Offering ID	Measure Offering Description
Air-cooled	Cycling	A	Control SCT to ambient +12 deg F TD, 70 deg F min, back-flood setpoint of 68 deg F
Air-cooled	VFD	B	Control SCT to ambient +12 deg F TD, 70 deg F min, back-flood setpoint of 68 deg F with VFD fan control
Evap-cooled	Cycling	C	Control SCT to wet bulb +17 deg F TD, 70 deg F min, back-flood setpoint of 68 deg F
Evap-cooled	VFD	D	Control SCT to wet bulb +17 deg F TD, 70 deg F min, back-flood setpoint of 68 deg F with VFD fan control

Base Case Description

A vintage-dependent commercial air-cooled or evaporatively cooled multiplex refrigeration system with a fixed saturated condensing temperature setpoint that does not follow the ambient condition.

Condenser Type	Condenser Fan Control	Statewide Measure Offering ID	Existing Description	Standard Description
Air-cooled	Cycling	A	Fixed head pressure controls, air-cooled	Fixed head pressure controls, air-cooled
Air-cooled	VFD	B	Fixed head pressure controls, air-cooled	Fixed head pressure controls, air-cooled
Evap-cooled	Cycling	C	Fixed head pressure controls, evap-cooled	Fixed head pressure controls, evap-cooled
Evap-cooled	VFD	D	Fixed head pressure controls, evap-cooled	Fixed head pressure controls, evap-cooled

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Com-Assembly, ECC - Com-Education - Community College, EPr - Com-Education - Primary School, ERC - Com-Education - Relocatable Classroom, ESe - Com-Education - Secondary School, EUn - Com-Education - University, Gro - Com-Grocery, Gst - Com-Lodging - Guest Room, Hsp - Com-Health/Medical - Hospital, Htl - Com-Lodging - Hotel, MBT - Ind-Manufacturing Biotech, MLI - Ind-Manufacturing Light Industrial, Mtl - Com-Lodging - Motel, Nrs - Com-Health/Medical - Nursing Home, OfL - Com-Office - Large, OfS - Com-Office - Small, RFF - Com-Restaurant - Fast-Food, RSD - Com-Restaurant - Sit-Down, Rt3 - Com-Retail - Multistory Large, RtL - Com-Retail - Single-Story Large, RtS - Com-Retail - Small, SCn - Com-Storage - Conditioned, SUn - Com-Storage - Unconditioned, WRf - Com-Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.06	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	1,268.47	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.41	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	239.04	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
To reduce floating head pressure to lower SCT, the equipment must meet the following requirements: • The controls are added to float head pressure down to a lower pressure when conditions permit (i.e., changes control from fixed setpoint to floating setpoint). • The controls only apply to refrigeration systems having multiplex compressor systems with existing control of the SCT at a fixed setpoint. • The new SCT setpoint must follow the ambient temperature by controlling condenser fans with variable-speed drives or by staging condenser fans. Products cannot be used in conjunction with measures that already incorporate floating head pressure controls. In addition, the following installations are ineligible: • Projects that only reprogram a controller; new hardware must be installed. • New construction installations. • Any improvements that will increase system energy use. • Building vintages and refrigeration multiplex system vintages after 2013 because the California Building Energy Efficiency Standards (Title 24) has mandated the floating controls since July 1, 2014. • Sub-cooler loads and air conditioning loads since the calculation of the design cooling load (tons) is based on connected display cases, walk-in coolers and freezers, cooled storage, and prep areas only.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify the vintage of the building and the system. The offerings are ineligible after July 1, 2014, due to Title 24 code mandates.
Important Notes
None

Floating Suction Controls, Multiplex

https://www.caetrm.com/measure/SWCR008/05/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR008-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

Installation of a floating suction pressure control that increases the suction temperature setpoint, which increases the compressor suction pressure and compressor efficiency, during periods of low loads based on the worst-case zone demand in a multiplex refrigeration system.

Condenser Type	Statewide Measure Offering ID	Measure Offering Description
Air-cooled	A	Floating suction temperature control for commercial air-cooled multiplex refrigeration systems
Evap-cooled	B	Floating suction temperature control for commercial evaporative-cooled multiplex refrigeration systems

Base Case Description

A multiplex refrigeration system with an air-cooled condenser or an evaporative-cooled condenser with a fixed evaporator temperature setpoint.

Condenser Type	Statewide Measure Offering ID	Existing Description	Standard Description
Air-cooled	A	Fixed suction temperature controls, air-cooled	Fixed suction temperature controls, air-cooled
Evap-cooled	B	Fixed suction temperature controls, evap-cooled	Fixed suction temperature controls, evap-cooled

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Gst - Lodging - Guest Room, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.05	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	519.84	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	311.17	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	6.70	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
The equipment must meet the following requirements: • Convert the suction pressure controls of an existing multiplex system from fixed control to floating control. The product specifications must describe it as a floating suction controller by name or definition (adjust (or float) the temperature setpoint based on the load of the system) • Adjust suction pressure to the highest point that will still maintain setpoint temperatures at monitored cases on the suction circuit. • Customer should be provided with formal training and instructional materials by the manufacturer or installer of the floating suction control system. This training should cover the correct operation of the new equipment and explicitly instruct against overriding the suction temperature reset. Alternatively, customers may opt for a service contract for the refrigeration system, which would encompass the appropriate upkeep of the floating suction control system and its configurations. The following installations are not eligible: • Projects that only reprogram a controller; new hardware installations are required, such as electronic suction regulators, case temperature sensors, controllers, and additional components. Floating suction pressure controls on refrigeration systems with variable speed evaporator fans. • Measure cannot be installed in conjunction with any improvements that will increase system energy use, such as new refrigeration loads, capacity expansion, condenser replacement, etc. • Refrigeration systems with heat recovery for process or comfort heating. • Replacement of broken/non-operational floating suction controls • Building vintage/ system vintage after 2013 because the California Building Energy Efficiency Standards (Title 24) has mandated the floating controls since July 1, 2014. • Sub-cooler loads and air conditioning loads since the calculation of the design cooling load (tons) is based on connected display cases, walk-in coolers and freezers, cooled storage, and prep areas only.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify the vintage of the building and the system. The offerings are ineligible after July 1, 2014, due to Title-24 code mandates.
Important Notes
None

Bare Suction Line Insulation

https://www.caetrm.com/measure/SWCR010/05/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR010-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of insulation on un-insulated suction lines of medium-temperature (cooler, case temperature ≥32°F) and low-temperature (freezer, case temperature <32°F) refrigeration system.

Equipment Type	Statewide Measure Offering ID	Measure Offering Description
Cooler (MT)	A	Walk-in cooler suction line insulation
Freezer (LT)	B	Walk-in freezer suction line insulation

Base Case Description

A refrigeration system with un-insulated suction refrigeration lines outside of the refrigerated space.

Equipment Type	Statewide Measure Offering ID	Existing Description	Standard Description
Cooler (MT)	A	Bare suction line, cooler	Bare suction line, cooler
Freezer (LT)	B	Bare suction line, freezer	Bare suction line, freezer

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Len-ft - length (feet)
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.01	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	29.08	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	20.04	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	11.00	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
The eligibility requirements are as follows: • Insulation must be of closed-cell elastomeric rubber at least ¾-inch thick for medium-temperature and 1-inch thick for low-temperature systems. • Insulation R-values must be greater than or equal to R-3.2 for medium-temperature cooler lines and R-4.3 for low-temperature freezer. • Insulation must have a flame spread index (FSI) rating of 25 or less and a smoke development index (SDI) rating of 50 or less (i.e. "25/50" rated) as tested to ASTM E84 standards. • The refrigeration suction line on existing equipment must be no more than 1-5/8 inches in diameter. • The existing refrigerant suction line should not be currently insulated nor have deteriorated insulation.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Compressor Retrofit, Multiplex

https://www.caetrm.com/measure/SWCR012/03/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2024

VERSION
SWCR012-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A Title 24-compliant, multiplex compressor refrigeration system, including both low- (freezer, case temperature <32°F) and medium-temperature (cooler, case temperature ≥32°F) sub-cooling.

Statewide Measure Offering ID	Measure Offering Description
A	Multiplex compressor, air-cooled

Base Case Description

An air-cooled single-compressor refrigeration system.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Standard efficiency air-cooled single compressor	Standard efficiency air-cooled single compressor

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.09	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	377.12	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-0.06	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	4,900.56	Link
Base Case Costs ($)	4,272.56	
Incremental Cost ($)	628.00	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
The eligibility requirements include the following: • Must replace stand-alone single-compressor system with a high-efficiency multiplex compressor system. • Must include floating head pressure control to a minimum 70°F setpoint. • Air-cooled condensers must use fan cycling or variable speed fans. Floating head pressure control is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Medium or Low-Temperature Display Case

https://www.caetrm.com/measure/SWCR014/05/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR014-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A display case with a rated daily energy consumption (DEC) that is at least a minimum prescribed percentage less than the maximum daily energy consumption (MDEC), permissible under the federal code standard, effective March 27, 2017. Measure case selection (and performance levels) are based on the average of all available equipment units performing better than code, which represents the higher efficiency levels.

Equipment class designation:

- **HCS.SC.L:** Horizontal Closed Solid, Self-Contained Commercial Freezers with Doors
- **HCS.SC.M:** Horizontal Closed Solid, Self-Contained Commercial Refrigerators with Doors
- **HCT.SC.I:** Horizontal Closed Transparent, Self-Contained Commercial Ice-Cream Freezers
- **HCT.SC.L:** Horizontal Closed Transparent, Self-Contained Commercial Freezers with Doors
- **HCT.SC.M:** Horizontal Closed Transparent, Self-Contained Commercial Refrigerators with Doors
- **HZO.RC.L:** Horizontal Open, Remote Condensing Commercial Freezers
- **SOC.RC.M:** Service Over Counter, Remote Condensing Commercial Refrigerators
- **SOC.SC.M:** Service Over Counter, Self-Contained Commercial Refrigerators with Doors
- **SVO.RC.M:** Semi vertical Open, Remote Condensing Commercial Refrigerators
- **SVO.SC.M:** Semi-Vertical Open, Self-Contained Commercial Refrigerators without Doors
- **VCS.SC.L:** Vertical Closed Solid, Self-Contained Commercial Freezers
- **VCS.SC.M:** Vertical Closed Solid, Self-Contained Commercial Refrigerators
- **VCT.RC.L:** Vertical Closed Transparent, Remote Condensing Commercial Freezers
- **VCT.RC.M:** Vertical Closed Transparent, Remote Condensing Commercial Refrigerators
- **VCT.SC.L:** Vertical Closed Transparent, Self-Contained Commercial Freezers
- **VCT.SC.M:** Vertical Closed Transparent, Self-Contained Commercial Refrigerators
- **VOP.RC.M:** Vertical Open, Remote Condensing Commercial Refrigerator
- **VOP.SC.M:** Vertical Open, Self-Contained Commercial Refrigerator without Doors

Base Case Description

A display case with efficiency minimally compliant with federal code standards, effective March 27, 2017.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	AgOth - Other Agricultural, Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUD - University Dormitory, EUn - Education - University, Gro - Grocery, HGR - Hotel Guest Room, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, IndOth - Other Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.14	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	1,102.71	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-6.11	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	9,476.01	Link
Base Case Costs ($)	7,307.21	
Incremental Cost ($)	2,168.80	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
None
Quality Assurance: Design, Installation, Commissioning, and Operation
Documentation of the existing condition must include model number(s), serial number(s), or other information to validate a manufacture date before March 27, 2017.
Important Notes
None

Medium-Temperature Case Doors

https://www.caetrm.com/measure/SWCR015/06/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR015-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The retrofit of glass doors on a medium-temperature (cooler, case temperature ≥32°F), open-vertical, refrigerated display case (also known as an open multi-deck case).

Note:

- "w/ night covers" means the base case includes night covers. Measure case does not require night covers.
- "with LED" means the existing fluorescent lighting will be removed and the new display case doors will include LED lighting.
- "without LED" means existing display case will either: 1) keep the LED lighting and the display case will not include new lighting or 2) replace the existing display case LED lighting with new LED lighting. Both scenarios in this offering assume no energy savings due to lighting.

Description	Statewide Measure Offering ID	Measure Offering Description
With LED	B	Vertical ref case, med. temp w/ night covers: open to closed with LED
Without LED	A	Vertical ref case, med. temp: open w/ night covers to closed (retrofit)

Base Case Description

A medium-temperature, open-vertical, refrigerated display case with night covers on for six hours per night.

Description	Statewide Measure Offering ID	Existing Description	Standard Description
With LED	B	Open, vertical, medium-temp display case with night covers	Open, vertical, medium-temp display case with night covers
Without LED	A	Open, vertical, medium-temp display case with night covers	Open, vertical, medium-temp display case with night covers

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial
Building Type	Gro - Grocery
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Len-ft - length (feet)
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.04	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	2,731.23	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	32.83	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	543.21	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
The measure may require changes to the refrigeration system serving the affected display case(s). These changes may include but are not limited to: replacing the expansion valve and/or evaporator pressure regulating valve, adjusting the evaporator temperature/pressure set point, resizing refrigeration piping, replacing the flood back valve on the condenser, resizing the coil/piping on applicable heat reclaim systems, and replacing or removing compressors. These potential changes stem from the significant reduction in the overall refrigeration load. Due to the complexity in determining which system alterations will be required at a site to maintain optimum system performance, a refrigeration contractor with design experience should be consulted before proceeding with the retrofit. The following changes are not eligible: • The complete removal of the existing display case and replacing it with a new case with glass doors. • Total lighting power in the measure case may not exceed total lighting power in the base case. (Several manufacturers interviewed stated that most retrofits include a switch to more efficient LED case lighting, but not an overall increase in lighting power density.) • Anti-sweat heat (ASH) may not be present in the glass doors or door mounting. (Two out of three manufacturers stated that their products did not contain ASH in the door or mullion. Thus, it was decided to specifically prohibit door and frame heat, as it does not appear necessary in medium-temperature applications.)
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify units meet the eligibility requirement in the Offering ID table.
Important Notes
The following specifications apply to the base case analysis: • The supply air temperature is 32°F • The coil capacity is 1,675 Btu/hr-ft of case • Offering B base case has two rows of T8 light fixtures in the canopy (18.3 W/ft of case) and 13.3 W/ft of evaporator coil fan electric use • Offering A base case has LED lighting • The case uses off-cycle defrost, with four defrost cycles per day

Ultra-Low Temperature Freezer

https://www.caetrm.com/measure/SWCR017/06/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR017-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An ultra-low temperature (ULT) freezer primarily used in labs at universities, biotech companies, biopharmaceutical companies, hospitals, and medical testing centers to store samples at temperatures between -94°F and -112°F that meets ENERGY STAR® Program Requirements Product Specification for Laboratory Grade Refrigerators and Freezers Version 2.0.

Volume Range	Statewide Measure Offering ID	Measure Offering Description
< 20 ft3	A	Refrig-freezer, high efficiency ultra-low temperature (ULT, -80 deg C) freezers, < 20 ft3
>= 20 ft3	B	Refrig-freezer, high efficiency ultra-low temperature (ULT, -80 deg C) freezers, >= 20 ft3

Base Case Description

A standard efficiency ULT freezer that does not meet the measure case criteria. In the absence of mandatory state and federal regulations for ULTs, there is little incentive on the part of equipment manufacturers to test their equipment. As such, the parameters for base case equipment use the Energy Star v1.1 Maximum Daily Energy Consumption (MDEC) Requirement.

Volume Range	Statewide Measure Offering ID	Existing Description	Standard Description
< 20 ft3	A	Standard efficiency ULT, < 20 ft3	Standard efficiency ULT, < 20 ft3
>= 20 ft3	B	Standard efficiency ULT, >= 20 ft3	Standard efficiency ULT, >= 20 ft3

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	AgOth - Other Agricultural, Cnc - Health/Medical - Clinics, ECC - Education - Community College, EUn - Education - University, Hsp - Health/Medical - Hospital, IFP - Food Processing, IPH - Manufacturing Pharmaceutical, IndOth - Other Industrial, MBT - Manufacturing Biotech, MPF - Metal Production and Fabrication, Nrs - Health/Medical - Nursing Home, RtL - Retail - Single-Story Large, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.28	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	2,160.31	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-11.97	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	17,181.50	Link
Base Case Costs ($)	15,861.31	
Incremental Cost ($)	1,320.20	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
A qualifying ultra-low-temperature (ULT) freezer must meet the following criteria: • Upright ULT freezer designed for laboratory applications that will maintain a setpoint storage temperature between -94°F and -112°F (-70°C and -80°C) • ENERGY STAR certification or meet the ULT maximum daily energy consumption (MDEC) criteria as specified in the ENERGY STAR Product Specification for Laboratory Grade Refrigerators and Freezers Eligibility Criteria Version 2.0.   • 0<Volume<20: MDEC ≤0.46 kWh/day/cu.ft.   • Volume≥20: MDEC ≤0.35 kWh/day/cu.ft. • 15 cu.ft. < Volume ≤ 29 cu.ft.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
eTRM lists specific building types. However, measure savings are not building type specific, and measure is eligible for other building types.

Reach-In Refrigerator or Freezer, Commercial

https://www.caetrm.com/measure/SWCR018/05/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR018-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial reach-in refrigerator or freezer that meets the ENERGY STAR® Program Requirements Product Specification for Commercial Refrigerators and Freezers Version 5.0 replacing a standard efficiency unit of the same configuration and capacity.

Equipment Type	Door Type	Volume (ft3)	Statewide Measure Offering ID	Measure Offering Description
Freezer	Glass	< 15	I	< 15 cubic feet glass-door reach-in freezer
Freezer	Glass	>= 50	L	>= 50 cubic feet glass-door reach-in freezer
Freezer	Glass	15 - 29	J	15 - 29 cubic feet glass-door reach-in freezer
Freezer	Glass	30 - 49	K	30 - 49 cubic feet glass-door reach-in freezer
Freezer	Solid	< 15	M	< 15 cubic feet solid-door reach-in freezer
Freezer	Solid	>= 50	P	>= 50 cubic feet solid-door reach-in freezer
Freezer	Solid	15 - 29	N	15 - 29 cubic feet solid-door reach-in freezer
Freezer	Solid	30 - 49	O	30 - 49 cubic feet solid-door reach-in freezer
Refrig	Glass	< 15	A	< 15 cubic feet glass door-reach-in refrigerator
Refrig	Glass	>= 50	D	>= 50 cubic feet glass-door reach-in refrigerator
Refrig	Glass	15 - 29	B	15 - 29 cubic feet glass-door reach-in refrigerator
Refrig	Glass	30 - 49	C	30 - 49 cubic feet glass-door reach-in refrigerator
Refrig	Solid	< 15	E	< 15 cubic feet solid-door reach-in refrigerator
Refrig	Solid	>= 50	H	>= 50 cubic feet solid-door reach-in refrigerator
Refrig	Solid	15 - 29	F	15 - 29 cubic feet solid-door reach-in refrigerator
Refrig	Solid	30 - 49	G	30 - 49 cubic feet solid-door reach-in refrigerator

Base Case Description

A standard-efficiency, reach-in solid or glass door refrigerator or freezer that complies with the U.S. Department of Energy (DOE) daily energy consumption requirements.

Equipment Type	Door Type	Volume (ft3)	Statewide Measure Offering ID	Existing Description	Standard Description
Freezer	Glass	< 15	I	Standard efficiency reach-in freezer meeting DOE requirements, glass, < 15 cf	Standard efficiency reach-in freezer meeting DOE requirements, glass, < 15 cf
Freezer	Glass	>= 50	L	Standard efficiency reach-in freezer meeting DOE requirements, glass, >= 50 cf	Standard efficiency reach-in freezer meeting DOE requirements, glass, >= 50 cf
Freezer	Glass	15 - 29	J	Standard efficiency reach-in freezer meeting DOE requirements, glass, 15 - 29 cf	Standard efficiency reach-in freezer meeting DOE requirements, glass, 15 - 29 cf
Freezer	Glass	30 - 49	K	Standard efficiency reach-in freezer meeting DOE requirements, glass, 30 - 49 cf	Standard efficiency reach-in freezer meeting DOE requirements, glass, 30 - 49 cf
Freezer	Solid	< 15	M	Standard efficiency reach-in freezer meeting DOE requirements, solid, < 15 cf	Standard efficiency reach-in freezer meeting DOE requirements, solid, < 15 cf
Freezer	Solid	>= 50	P	Standard efficiency reach-in freezer meeting DOE requirements, solid, >= 50 cf	Standard efficiency reach-in freezer meeting DOE requirements, solid, >= 50 cf
Freezer	Solid	15 - 29	N	Standard efficiency reach-in freezer meeting DOE requirements, solid, 15 - 29 cf	Standard efficiency reach-in freezer meeting DOE requirements, solid, 15 - 29 cf
Freezer	Solid	30 - 49	O	Standard efficiency reach-in freezer meeting DOE requirements, solid, 30 - 49 cf	Standard efficiency reach-in freezer meeting DOE requirements, solid, 30 - 49 cf
Refrig	Glass	< 15	A	Standard efficiency reach-in refrig meeting DOE requirements, glass, < 15 cf	Standard efficiency reach-in refrig meeting DOE requirements, glass, < 15 cf
Refrig	Glass	>= 50	D	Standard efficiency reach-in refrig meeting DOE requirements, glass, >= 50 cf	Standard efficiency reach-in refrig meeting DOE requirements, glass, >= 50 cf
Refrig	Glass	15 - 29	B	Standard efficiency reach-in refrig meeting DOE requirements, glass, 15 - 29 cf	Standard efficiency reach-in refrig meeting DOE requirements, glass, 15 - 29 cf
Refrig	Glass	30 - 49	C	Standard efficiency reach-in refrig meeting DOE requirements, glass, 30 - 49 cf	Standard efficiency reach-in refrig meeting DOE requirements, glass, 30 - 49 cf
Refrig	Solid	< 15	E	Standard efficiency reach-in refrig meeting DOE requirements, solid, < 15 cf	Standard efficiency reach-in refrig meeting DOE requirements, solid, < 15 cf
Refrig	Solid	>= 50	H	Standard efficiency reach-in refrig meeting DOE requirements, solid, >= 50 cf	Standard efficiency reach-in refrig meeting DOE requirements, solid, >= 50 cf
Refrig	Solid	15 - 29	F	Standard efficiency reach-in refrig meeting DOE requirements, solid, 15 - 29 cf	Standard efficiency reach-in refrig meeting DOE requirements, solid, 15 - 29 cf
Refrig	Solid	30 - 49	G	Standard efficiency reach-in refrig meeting DOE requirements, solid, 30 - 49 cf	Standard efficiency reach-in refrig meeting DOE requirements, solid, 30 - 49 cf

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.08	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	650.23	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-3.60	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	5,698.49	Link
Base Case Costs ($)	5,268.19	
Incremental Cost ($)	430.29	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
Units with remote refrigeration systems do not qualify and used or rebuilt equipment are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Low-Temperature Coffin To Reach-In Display Case Conversion

https://www.caetrm.com/measure/SWCR019/04/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR019-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high-efficiency, low-temperature (freezer, case temperature <32°F) reach-in refrigerated display case. Offerings are defined by the base case coffin's width where:

- "wide" means the measure case is ⅓ the base case length (e.g., 20-foot reach-in case replacing 60-foot coffin case).

"narrow" means the measure case is ¼ the base case length (e.g., 15-foot reach-in case replacing 60-foot coffin case).

Equipment Type - Baseline	Statewide Measure Offering ID	Measure Offering Description
Narrow Coffin	B	Low temp narrow coffin to reach-in display case
Wide Coffin	A	Low temp wide coffin to reach-in display case

Base Case Description

A low-temperature coffin (open) refrigerated display case that complies with Title 10 maximum daily energy consumption (MDEC) requirement.

Equipment Type - Baseline	Statewide Measure Offering ID	Existing Description	Standard Description
Narrow Coffin	B	Standard efficiency low temperature coffin display case	Standard efficiency low temperature coffin display case
Wide Coffin	A	Standard efficiency low temperature coffin display case	Standard efficiency low temperature coffin display case

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Len-ft - length (feet)
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.29	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	2,728.12	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-15.15	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	919.63	Link
Base Case Costs ($)	779.90	
Incremental Cost ($)	139.73	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
Installation must meet the following criteria: • If the display width is ≤3 ft, the coffin must be replaced by a reach-in case that is ¼ of the total length of the coffins or less. • If the display width is >3 ft, the coffin must be replaced by a reach-in case that is ⅓ of the total length of the coffin or less. The replacement case must include triple-pane doors with low or no anti-sweat heat or with anti-sweat-heat controls.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Medium-Temperature Open Display Case Retrofit

https://www.caetrm.com/measure/SWCR020/04/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR020-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A medium-temperature (cooler, case temperature ≥32°F), open, vertical refrigerated display case with a high efficiency evaporator coil.

Statewide Measure Offering ID	Measure Offering Description
A	Medium temp open vertical refrigerated display case with a high efficiency evaporator coil

Base Case Description

A medium temperature, open, vertical (or multi-deck) refrigerated display case with a standard evaporator coil that complies with Title 10 maximum daily energy consumption (MDEC) requirement.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Code-compliant medium temp, open vertical refrigerated display case with a standard evaporator coil	Code-compliant medium temp, open vertical refrigerated display case with a standard evaporator coil

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Len-ft - length (feet)
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.03	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	113.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,464.74	Link
Base Case Costs ($)	1,383.49	
Incremental Cost ($)	81.26	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
The medium-temperature display case must meet or exceed specifications and efficiency requirements through the use of a high efficiency evaporator coil. The new display case must replace an existing medium-temperature, open, vertical refrigerated display case of the same style with an equivalent setpoint temperature and not higher than the replaced unit's setpoint temperature. The new display case must not have a lower total display area and higher lighting and/or anti-condensate heater wattage than the replaced case.
Quality Assurance: Design, Installation, Commissioning, and Operation
The manufacturer specification sheet for the new display case should be submitted to confirm eligibility.
Important Notes
None

Medium or Low-Temperature Display Case With Doors

https://www.caetrm.com/measure/SWCR021/04/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2026

VERSION
SWCR021-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A low-temperature (freezer, case temperature <32°F) or a medium-temperature (cooler, case temperature at or above ≥32°F), reach-in, glass door display case.

Equipment Type	Statewide Measure Offering ID	Measure Offering Description
Cooler (MT)	A	New display case with doors, MT
Freezer (LT)	B	New display case with doors, LT

Base Case Description

A low- or medium-temperature, open, vertical (or multi-deck) display case that complies with Title 10 maximum daily energy consumption (MDEC) requirement.

Equipment Type	Statewide Measure Offering ID	Existing Description	Standard Description
Cooler (MT)	A	Standard display case without doors, MT	Standard display case without doors, MT
Freezer (LT)	B	Standard display case without doors, LT	Standard display case without doors, LT

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Len-ft - length (feet)
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.40	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	2,322.50	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	4.94	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,043.39	Link
Base Case Costs ($)	1,584.95	
Incremental Cost ($)	458.43	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
This measure is applicable for supermarkets and grocery stores with stand-alone and/or multiplex compressor racks that provide refrigeration to remote display cases and walk-in coolers/freezers. This measure is applicable to supermarkets and grocery stores with both medium-temperature and low-temperature open multi-deck refrigeration cases. Requirements include: • Must replace an existing, open, multi-deck display case with a new reach-in unit with doors, electronically commutated motor (ECM) evaporator fan(s), and LED lighting. • Medium-temperature cases must have no heat in the door. Heat is allowed in the frames of medium temperature cases. • Low-temperature case door and frame heaters combined may not consume more than 50 W/ft of case length. • The new case length must be less than or equal to the original case length. • The new case setpoint temperature cannot be lower than the original case setpoint temperature. • This measure is only for display cases served by a remote refrigeration system. The following are not eligible: • Specialty deli cases, custom coolers/freezers, and walk-in boxes with reach-in doors • Refurbished cases unless compliant with the 2012 Federal Efficiency Standards • Display case replacements that are part of large-scale store remodels – involving 50% of the linear feet of refrigerated casework or 32 linear feet of casework replacements, whichever is less – and any new construction project.
Quality Assurance: Design, Installation, Commissioning, and Operation
Salvage, disposal or photographic records of replaced equipment should be part of program application requirements when early replacement or open-to-closed case conversion savings are being utilized to ensure the correct baseline is assumed for these measures.
Important Notes
None

Efficient Adiabatic Condenser

https://www.caetrm.com/measure/SWCR022/04/

USE CATEGORY
CR - Commercial Refrigeration

EFFECTIVE START DATE
1/1/2024

VERSION
SWCR022-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

Measure includes the following offerings:

- Offering A includes saturated condensing temperature (SCT) controls, in wet mode and dry mode, to reset based on outdoor dry-bulb temperature (variable condensing setpoint control) on an existing code-compliant standard efficiency (45 Btu/W) adiabatic condenser serving a commercial refrigeration system using halocarbon refrigerants.
- Offering B is defined as installing an efficient adiabatic condenser rated at ≥65 Btu/W replacing a code-compliant standard efficiency (45 Btu/W) adiabatic condenser serving a commercial refrigeration system using halocarbon refrigerants.

Control	Statewide Measure Offering ID	Measure Offering Description
Efficient Adiabatic Condenser (>= 65 Btu/W) with Variable SCT Control	B	Efficient adiabatic condenser (>= 65 Btu/W) with variable SCT control
Variable Condensing Setpoint Control	A	Variable condensing setpoint control on standard adiabatic condenser

Base Case Description

The base cases are:

- Offering A: A code-compliant standard efficiency adiabatic condenser rated at 45 Btu/W with variable speed fan control and a fixed saturated condensing temperature setpoint.
- Offering B: A 2022 Title 24 compliant adiabatic condenser rated at 45 Btu/W with variable speed fan control and a variable condensing setpoint. The measure case for Offering A is the base case for measure Offering B.

Control	Statewide Measure Offering ID	Existing Description	Standard Description
Efficient Adiabatic Condenser (>= 65 Btu/W) with Variable SCT Control	B	Title 24 2022 efficiency adiabatic condenser with variable SCT control	Title 24 2022 efficiency adiabatic condenser with variable SCT control
Variable Condensing Setpoint Control	A	Title 24 2022 efficiency adiabatic condenser with fixed SCT control	Title 24 2022 efficiency adiabatic condenser with fixed SCT control

Applicable Parameters:

Parameters	Labels
Measure Application Type	BRO-RCx - BRO-Retrocommissioning, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	Gro - Grocery
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.12	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	555.72	Link
Standard - Electric Savings (kWh/yr)	30.79	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	789.74	Link
Base Case Costs ($)	970.98	
Incremental Cost ($)	204.75	
Effective Useful Life (years)	11.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWCR_Summary.xlsx

Others:

Program Exclusions
The variable condensing setpoint controls (Offering A) must meet the following requirements: • When operating in wet and dry mode, SCT reset is based on the outdoor dry-bulb temperature. • A rated temperature difference of 10°F when operating in dry mode, and 30°F when operating in wet mode. The efficient adiabatic condenser (Offering B) must meet the following requirements: • The new condenser must have an efficiency rating ≥65 Btu/W. • The new condenser must also have variable condensing setpoint controls installed. The following are not eligible: • Non-grocery building types. • Grocery building condensers serving HVAC systems. • Carbon dioxide (CO2) and ammonia (NH3) based refrigeration systems.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Convection Oven, Commercial

https://www.caetrm.com/measure/SWFS001/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS001-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial convection oven that meets (Tier 1) or exceeds (Tier 2) the ENERGY STAR® Program Requirements Product Specification for Commercial Ovens - Version 3.0.

Oven Type	Oven Size	Statewide Measuring Offering ID	Measure Offering Description
Electric	Full	B	Efficient commercial convection oven, full, electric
Electric	Half	A	Efficient commercial convection oven, half, electric
Gas (Tier 1)	Full	E	Efficient commercial convection oven, full, gas (tier 1)
Gas (Tier 2)	Full	F	Efficient commercial convection oven, full, gas (tier 2)

Base Case Description

A commercial convection oven that does not meet the ENERGY STAR requirements.

Oven Type	Oven Size	Statewide Measuring Offering ID	Existing Description	Standard Description
Electric	Full	B	Standard commercial convection oven, full, electric	Standard commercial convection oven, full, electric
Electric	Half	A	Standard commercial convection oven, half, electric	Standard commercial convection oven, half, electric
Gas (Tier 1)	Full	E	Standard commercial convection oven, full, gas	Standard commercial convection oven, full, gas
Gas (Tier 2)	Full	F	Standard commercial convection oven, full, gas	Standard commercial convection oven, full, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.26	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	1,030.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	124.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	8,618.78	Link
Base Case Costs ($)	7,332.29	
Incremental Cost ($)	1,286.49	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
All qualifying convection oven models must be approved and listed in the California Energy Commission (CEC) certified appliance database and must meet the ENERGY STAR Version 3.0 eligibility criteria. Used or rebuilt equipment is not eligible. Half-size gas convection oven is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Door-Type Dishwasher, Commercial

https://www.caetrm.com/measure/SWFS002/05/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS002-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial high- or low- temperature door type dishwasher that meets (Tier 1) the maximum water consumption and idle energy rate specifications specified by ENERGY STAR® Program Requirements Product Specification for Commercial Dishwasher Version 3.0 or exceeds (Tier 2) the maximum water consumption by 15%.

Tier	Temperature	Statewide Measure Offering ID	Measure Offering Description
Tier 1	High	C	Efficient commercial dishwasher, high temp, tier 1 (gal/rack <= 0.89, idle rate <= 0.55)
Tier 1	Low	D	Efficient commercial dishwasher, low temp, tier 1 (gal/rack <= 1.18, idle rate <= 0.30)
Tier 2	High	A	Efficient commercial dishwasher, high temp, tier 2 (gal/rack <= 0.76, idle rate <= 0.55)
Tier 2	Low	B	Efficient commercial dishwasher, low temp, tier 2 (gal/rack <= 1.00, idle rate <= 0.30)

Base Case Description

Industry standard practice door-type commercial dishwasher.

Tier	Temperature	Statewide Measure Offering ID	Existing Description	Standard Description
Tier 1	High	C	Standard commercial dishwasher, high temp	Standard commercial dishwasher, high temp
Tier 1	Low	D	Standard commercial dishwasher, low temp	Standard commercial dishwasher, low temp
Tier 2	High	A	Standard commercial dishwasher, high temp	Standard commercial dishwasher, high temp
Tier 2	Low	B	Standard commercial dishwasher, low temp	Standard commercial dishwasher, low temp

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.29	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	1,368.08	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	181.85	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	22,051.47	
Measure Case Costs ($)	8,498.77	Link
Base Case Costs ($)	6,123.86	
Incremental Cost ($)	2,374.91	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment and other dishwasher types (conveyor, under-counter, flight-type) are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Combination Oven, Commercial

https://www.caetrm.com/measure/SWFS003/05/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS003-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial combination oven that meets ENERGY STAR® Program Requirements Product Specification for Commercial Ovens Version 3.0.

Fuel	Size (Number of Pans)	Statewide Measure Offering ID	Measure Offering Description
Electric	< 15	A	Efficient commercial combination oven, < 15 pans model, electric
Electric	> 28	C	Efficient commercial combination oven, > 28 pans model, electric
Electric	15 - 28	B	Efficient commercial combination oven, 15 - 28 pans model, electric
Gas	< 15	D	Efficient commercial combination oven, < 15 pans model, gas
Gas	> 28	F	Efficient commercial combination oven, > 28 pans model, gas
Gas	15 - 28	E	Efficient commercial combination oven, 15 - 28 pans model, gas

Base Case Description

A combination oven that does not meet the ENERGY STAR requirements.

Fuel	Size (Number of Pans)	Statewide Measure Offering ID	Existing Description	Standard Description
Electric	< 15	A	Standard commercial combination oven, < 15 pans model, electric	Standard commercial combination oven, < 15 pans model, electric
Electric	> 28	C	Standard commercial combination oven, > 28 pans model, electric	Standard commercial combination oven, > 28 pans model, electric
Electric	15 - 28	B	Standard commercial combination oven, 15 - 28 pans model, electric	Standard commercial combination oven, 15 - 28 pans model, electric
Gas	< 15	D	Standard commercial combination oven, < 15 pans model, gas	Standard commercial combination oven, < 15 pans model, gas
Gas	> 28	F	Standard commercial combination oven, > 28 pans model, gas	Standard commercial combination oven, > 28 pans model, gas
Gas	15 - 28	E	Standard commercial combination oven, 15 - 28 pans model, gas	Standard commercial combination oven, 15 - 28 pans model, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.89	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	4,263.33	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	142.33	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	13,056.72	
Measure Case Costs ($)	30,168.44	Link
Base Case Costs ($)	28,226.71	
Incremental Cost ($)	1,941.73	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Griddle, Commercial

https://www.caetrm.com/measure/SWFS004/03/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS004-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial griddle that meets the ENERGY STAR® Program Requirements Product Specification for Commercial Griddles Version 1.2.

- Gas: heavy-load cooking energy efficiency ≥38% and an idle energy rate ≤2,650 Btu/hr/sq.ft. of cooking surface for gas
- Electric: a heavy-load cooking energy efficiency ≥70% and an idle energy rate ≤355 W/sq.ft. of cooking surface

Fuel	Statewide Measure Offering ID	Measure Offering Description
Electric	A	Efficient commercial griddle, electric
Gas	B	Efficient commercial griddle, gas

Base Case Description

A standard efficiency commercial griddle that does not meet ENERGY STAR certification requirements.

Fuel	Statewide Measure Offering ID	Existing Description	Standard Description
Electric	A	Standard commercial griddle, electric	Standard commercial griddle, electric
Gas	B	Standard commercial griddle, gas	Standard commercial griddle, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Len-ft - length (feet)
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.14	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	665.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	63.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	3,550.63	Link
Base Case Costs ($)	3,036.03	
Incremental Cost ($)	514.61	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Steamer, Commercial

https://www.caetrm.com/measure/SWFS005/05/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS005-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial griddle that meets the ENERGY STAR® Program Requirements Product Specification for Steam Cookers Version 1.2.

Steamer Type	Statewide Measure Offering ID	Measure Offering Description
Electric	A	Efficient commercial steamer, electric
Gas	B	Efficient commercial steamer, gas

Base Case Description

A standard efficiency commercial steam cooker that does not meet ENERGY STAR certification requirements.

Steamer Type	Statewide Measure Offering ID	Existing Description	Standard Description
Electric	A	Standard commercial steamer, electric	Standard commercial steamer, electric
Gas	B	Standard commercial steamer, gas	Standard commercial steamer, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.56	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	1,850.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	550.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	122,025.36	
Measure Case Costs ($)	10,262.81	Link
Base Case Costs ($)	7,854.47	
Incremental Cost ($)	2,408.34	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Ice Machine, Commercial

https://www.caetrm.com/measure/SWFS006/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS006-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A batch type (which includes cubed and half cubed ice machines) or continuous type (which includes flake and nugget ice machines) commercial ice maker that meets ENERGY STAR® Program Requirements Product Specification for Automatic Commercial Ice Makers Version 3.0. (Tier 1) and the Consortium for Energy Efficiency (CEE) High Efficiency Specifications for Automatic Commercial Ice Machines (Tier 1 and Advanced Tier).

Tier	Ice Machine type	Harvest Rate (lb/day)	Statewide Measure Offering ID	Measure Offering Description
Advanced	IMH	< 800	M	High efficient commercial ice maker, ice making head (IMH), < 800 lb/day
Advanced	IMH	>= 1,500	O	High efficient commercial ice maker, ice making head (IMH), >= 1500 lb/day
Advanced	IMH	800-1,499	N	High efficient commercial ice maker, ice making head (IMH), 800-1499 lb/day
Advanced	RCU	< 800	P	High efficient commercial ice maker, remote condensing unit (RCU), < 800 lb/day
Advanced	RCU	>= 988	R	High efficient commercial ice maker, remote condensing unit (RCU), >= 988 lb/day
Advanced	RCU	800-987	Q	High efficient commercial ice maker, remote condensing unit (RCU), 800 - 987 lb/day
Advanced	SCU	< 200	J	High efficient commercial ice maker, self-contained unit (SCU), <200 lb/day
Advanced	SCU	>= 700	L	High efficient commercial ice maker, self-contained unit (SCU), >= 700 lb/day
Advanced	SCU	200 - 699	K	High efficient commercial ice maker, self-contained unit (SCU), 200 - 699 lb/day
Tier 1	IMH	< 300	D	Efficient commercial ice maker, ice making head (IMH), < 300 lb/day
Tier 1	IMH	>= 1,500	G	Efficient commercial ice maker, ice making head (IMH), >= 1500 lb/day
Tier 1	IMH	300-799	E	Efficient commercial ice maker, ice making head (IMH), 300-799 lb/day
Tier 1	IMH	800-1,499	F	Efficient commercial ice maker, ice making head (IMH), 800-1499 lb/day

Tier	Ice Machine type	Harvest Rate (lb/day)	Statewide Measure Offering ID	Measure Offering Description
Tier 1	RCU	< 988	H	Efficient commercial ice maker, ice making head (RCU), < 988 lb/day
Tier 1	RCU	>= 988	I	Efficient commercial ice maker, remote condensing unit (RCU), >= 988 lb/day
Tier 1	SCU	< 110	A	Efficient commercial ice maker, self-contained unit (SCU), < 110 lb/day
Tier 1	SCU	>= 200	C	Efficient commercial ice maker, self-contained unit (SCU), >=200 lb/day
Tier 1	SCU	110-199	B	Efficient commercial ice maker, self-contained unit (SCU), 110 - 199 lb/day

Base Case Description

A commercial ice maker that complies with the minimum energy efficiency requirement of California Appliance Efficiency Regulations (Title 20).

Tier	Ice Machine type	Harvest Rate (lb/day)	Statewide Measure Offering ID	Existing Description	Standard Description
Advanced	IMH	< 800	M	Standard commercial ice maker, IMH, < 800 lb/day	Standard commercial ice maker, IMH, < 800 lb/day
Advanced	IMH	>= 1,500	S	Standard commercial ice maker, IMH, >= 1,500 lb/day	Standard commercial ice maker, IMH, >= 1,500 lb/day
Advanced	IMH	800-1,499	R	Standard commercial ice maker, IMH, 800 - 1499 lb/day	Standard commercial ice maker, IMH, 800 - 1499 lb/day
Advanced	RCU	< 800	T	Standard commercial ice maker, RCU, < 800 lb/day	Standard commercial ice maker, RCU, < 800 lb/day
Advanced	RCU	>= 988	V	Standard commercial ice maker, RCU, >= 988 lb/day	Standard commercial ice maker, RCU, >= 988 lb/day
Advanced	RCU	800-987	U	Standard commercial ice maker, RCU, 800-987 lb/day	Standard commercial ice maker, RCU, 800-987 lb/day
Advanced	SCU	< 200	J	Standard commercial ice maker, SCU, < 200 lb/day	Standard commercial ice maker, SCU, < 200 lb/day
Advanced	SCU	>= 700	L	Standard commercial ice maker, SCU, >= 700 lb/day	Standard commercial ice maker, SCU, >= 700 lb/day
Advanced	SCU	200 - 699	K	Standard commercial ice maker, SCU, 200 - 699 lb/day	Standard commercial ice maker, SCU, 200 - 699 lb/day
Tier 1	IMH	< 300	E	Standard commercial ice maker, IMH, < 300 lb/day	Standard commercial ice maker, IMH, < 300 lb/day
Tier 1	IMH	>= 1,500	H	Standard commercial ice maker, IMH, >= 1,500 lb/day	Standard commercial ice maker, IMH, >= 1,500 lb/day
Tier 1	IMH	300-799	F	Standard commercial ice maker, IMH, 300 - 799 lb/day	Standard commercial ice maker, IMH, 300 - 799 lb/day
Tier 1	IMH	800-1,499	G	Standard commercial ice maker, IMH, 800 - 1499 lb/day	Standard commercial ice maker, IMH, 800 - 1499 lb/day

Tier	Ice Machine type	Harvest Rate (lb/day)	Statewide Measure Offering ID	Existing Description	Standard Description
Tier 1	RCU	< 988	H	Standard commercial ice maker, RCU, <988 lb/day	Standard commercial ice maker, RCU, <988 lb/day
Tier 1	RCU	>= 988	K	Standard commercial ice maker, RCU, >= 988 lb/day	Standard commercial ice maker, RCU, >= 988 lb/day
Tier 1	SCU	< 110	A	Standard commercial ice maker, SCU, < 110 lb/day	Standard commercial ice maker, SCU, < 110 lb/day
Tier 1	SCU	>= 200	C	Standard commercial ice maker, SCU, >= 200 lb/day	Standard commercial ice maker, SCU, >= 200 lb/day
Tier 1	SCU	110-199	B	Standard commercial ice maker, SCU, 110 - 199 lb/day	Standard commercial ice maker, SCU, 110 - 199 lb/day

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.17	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	1,695.06	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	50,187.50	
Measure Case Costs ($)	7,904.17	Link
Base Case Costs ($)	7,104.56	
Incremental Cost ($)	799.61	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Installation must meet the following criteria: • Minimum daily ice harvest rate must be ≥50 lbs ice/day. • The entire AHRI-tested ice making system must be purchased. • Remote machines must be purchased with qualifying remote condenser or remote condenser/compressor unit. • Only air-cooled machines (self-contained, icemaker heads, or remote condensing) are eligible. Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Insulated Hot Food Holding Cabinet

https://www.caetrm.com/measure/SWFS007/05/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS007-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An energy efficient half-size (<15 cu.ft.) or full-size (≥15 cu.ft.) insulated hot food holding cabinet (HFHC).

Cabinet Size	Statewide Measure Offering ID	Measure Offering Description
Full	A	Efficient commercial hot food holding cabinet, full, electric
Half	B	Efficient commercial hot food holding cabinet, half, electric

Base Case Description

A half-size or full-size HFHC that complies with Title 20 maximum normalized idle energy rate requirement.

Cabinet Size	Statewide Measure Offering ID	Existing Description	Standard Description
Full	A	Electric holding cabinet, full	Electric holding cabinet, full
Half	B	Electric holding cabinet, half	Electric holding cabinet, half

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.22	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	814.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	4,494.19	Link
Base Case Costs ($)	2,211.38	
Incremental Cost ($)	2,282.80	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
This measure includes new full-size (≥15 cu.ft.) and half-size (<15 cu.ft.) insulated food holding cabinets. Eligible products must meet the following requirements: • Qualifying cabinets must not exceed the maximum idle energy rate of 25 W/cu.ft. for full-size cabinets and 35 W/cu.ft. for half-size cabinets, in accordance with the American Society for Testing and Materials (ASTM) Standard Test Method for the Performance of Hot Food Holding Cabinets (F2140). • All measures must be electric hot food holding cabinets that are fully insulated (i.e., on all sides) and have solid or transparent doors designed to maintain the temperature of hot food that has been cooked using a separate appliance. • Eligible holding cabinets must be listed on the Food Service Technology Center (FSTC) qualified product list (https://caenergywise.com/rebates/). • Must have an electric resistance heating element. Cook-and-hold or retherm, used or rebuilt, and passive holding cabinets with no heating elements equipment are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Conveyor Oven, Gas, Commercial

https://www.caetrm.com/measure/SWFS008/03/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS008-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial gas conveyor oven that has a cooking energy efficiency ≥42% and an idle energy rate ≤57,000 Btu/hr, based on American Society for Testing and Materials (ASTM) Standard Test Method F1817.

Statewide Measure Offering ID	Measure Offering Description
A	Commercial conveyor oven - gas

Base Case Description

A commercial conveyor oven with cooking efficiency <42% and/or idle rate >57,000 Btu/hr, based on ASTM Standard F1817.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Gas conveyor oven with cooking efficiency < 42% and/or idle rate > 57,000 Btu/hr	Gas conveyor oven with cooking efficiency < 42% and/or idle rate > 57,000 Btu/hr

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	495.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	30,069.91	Link
Base Case Costs ($)	27,984.53	
Incremental Cost ($)	2,085.38	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Deck Oven, Electric, Commercial

https://www.caetrm.com/measure/SWFS009/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS009-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial electric deck oven that has a cooking energy efficiency ≥60%, based on American Society for Testing and Materials (ASTM) Standard Test Method F1965-99.

Statewide Measure Offering ID	Measure Offering Description
A	Efficient commercial deck oven

Base Case Description

A commercial electric deck oven that has a cooking energy efficiency ≥40%, based on ASTM F1965-99.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Oven-Combo	Oven-Combo

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	1.55	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	7,520.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	13,830.81	Link
Base Case Costs ($)	11,211.58	
Incremental Cost ($)	2,619.24	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Eligible deck ovens must meet the following requirements: • Have a heavy load cooking efficiency of 60% or greater based on the heavy-load pizza test in ASTM F1965-99(2010). • Have an idle energy rate of 1.3 kW or less. • Be on the Food Service Technology Center (FSTC) qualified product list found at https://caenergywise.com/rebates/ Used or rebuilt equipment and replacement of gas deck ovens are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Commercial Hand-Wrap Machine, Electric

https://www.caetrm.com/measure/SWFS010/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS010-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial on-demand electric hand-wrap machine.

Fuel	Statewide Measure Offering ID	Measure Offering Description
Electric	A	Efficient commercial hand wrap machine, electric

Base Case Description

A commercial always-on electric hand-wrap machine.

Fuel	Statewide Measure Offering ID	Existing Description	Standard Description
Electric	A	Standard commercial hand wrap machine, electric	Standard commercial hand wrap machine, electric

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.18	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	1,560.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,857.90	Link
Base Case Costs ($)	1,605.87	
Incremental Cost ($)	252.03	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
This measure is for a new commercial on-demand hand-wrap machine that uses either a mechanical (pressure applied on the heating platform engages the ON switch) or optical (an optical eye detects light reflected from the product placed on the heating platform) control system to turn OFF heating platform when not in demand. Eligible hand-wrap machines also must be listed on the Food Service Technology Center (FSTC) qualified product list under the hand wrappers tab (https://caenergywise.com/instant-rebates/qpl/). Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Fryer, Commercial

https://www.caetrm.com/measure/SWFS011/07/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS011-07

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial fryer that meets (Electric and Tier 1 Gas) or exceed (Tier 2 Gas) ENERGY STAR® Program Requirements Product Specification for Commercial Fryers Version 3.0. Tier 2 requires a heavy-load cooking energy efficiency ≥60% and an idle rate ≤6,100 Btu/hr, per a "Memo-Gas Fryers" report by Frontier Energy.

Fryer Type	Statewide Measure Offering ID	Measure Offering Description
Electric	A	Efficient commercial fryer, electric
Gas (Tier 1)	B	Efficient commercial fryer, gas (tier 1)
Gas (Tier 2)	C	Efficient commercial fryer, gas (tier 2)

Base Case Description

A commercial fryer that does not meet ENERGY STAR requirement.

Fryer Type	Statewide Measure Offering ID	Existing Description	Standard Description
Electric	A	Standard commercial fryer, electric	Standard commercial fryer, electric
Gas (Tier 1)	B	Standard commercial fryer, gas	Standard commercial fryer, gas
Gas (Tier 2)	C	Standard commercial fryer, gas	Standard commercial fryer, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.07	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	343.33	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	314.67	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	10,027.86	Link
Base Case Costs ($)	6,265.43	
Incremental Cost ($)	3,762.43	
Effective Useful Life (years)	11.33	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Exhaust Hood Demand Controlled Ventilation, Commercial

https://www.caetrm.com/measure/SWFS012/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS012-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A demand-controlled kitchen ventilation (DCKV) system that varies the exhaust and supply fan speed based on the cooking appliances' energy and effluent output.

MeasAppType	Statewide Measure Offering ID	Measure Offering Description
AOE	B	Demand controls on existing commercial kitchen ventilation system
NC	A	Demand controls on new commercial kitchen ventilation system

Base Case Description

A standard commercial kitchen ventilation system with single-speed exhaust and makeup air fans and a simple ON/OFF control.

MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
AOE	B	Constant volume commercial kitchen ventilation controls	Constant volume commercial kitchen ventilation controls
NC	A	Constant volume commercial kitchen ventilation controls	Constant volume commercial kitchen ventilation controls

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NC - New Construction
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Rated-HP - nameplate HP
Electric Impact Profile ID	DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.59	Link
Standard - Peak Demand Reduction (kW)	0.59	
Existing - Electric Savings (kWh/yr)	2,890.00	Link
Standard - Electric Savings (kWh/yr)	2,890.00	
Existing - Gas Savings (therm/yr)	121.03	Link
Standard - Gas Savings (therm/yr)	121.02	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,516.06	Link
Base Case Costs ($)	0.00	
Incremental Cost ($)	935.48	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	15.00	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Eligible installation must meet the following requirements: • The measure requires the installation of a sensor(s) in the hood exhaust collar or within the hood, that senses cooking conditions and allows the system to automatically vary the rate of exhaust and make-up airflow. Advanced systems that can communicate directly with cooking appliances varying the ventilation rate based on cook cycles are allowed in lieu of hood sensors. • The control system must be used in conjunction with a variable-speed drive (VSD) or directly vary the speed of an EC motor on the exhaust and supply fans. Systems with a single exhaust fan installed on multiple hoods must use balancing dampers to vary the airflow in the separate hoods. • The control system must be able to control the supply airflow proportional to the exhaust airflow on the makeup air side by either varying the speed of the MUA or DOAS fan motor or by varying the amount of outside air by controlling a damper. This can be done indirectly by the DCKV system through EMS integration or direct communication with the MUA or DOAS. • Installation of new exhaust hoods (i.e., NC) must have a total of all kitchen hoods' exhaust be ≤5,000 cfm, due to Title 24 mandate. Automatic on and off scheduling done with hood controls or EMS is considered the base case. Exhaust systems with a VFD or ECM that is not controlled by cooking sensors are not considered DCKV. In the context of DCKV, a kitchen is defined as a cooking space with a single or multiple exhaust hoods. Kitchen hoods in separate cooking spaces connected by ductwork and exhausted by the same fan are considered a part of the same kitchen. Kitchen spaces on a campus or in a large building that are on separate floors or in distinctly different spaces without connecting exhaust duct work are considered separate kitchens. Food courts with kitchens that have separate spaces and do not share the same exhaust fan for cooking are considered separate kitchens. Food courts with kitchens that have a single kitchen space and that share exhaust fans for cooking are considered the same kitchen. Ghost kitchens shall have their cooklines considered to be separate kitchens only if the cooking hoods are not connected to the same exhaust duct work and are not sharing the same exhaust fan. Ghost kitchens may share point of sale infrastructure and dishwashing ventilation system. Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
The customer must provide verification of total exhaust cfm controlled by the new or existing kitchen hood to verify eligibility of the measure. Ventilation system controls must be properly installed and commissioned to ensure optimal performance and prevent control system override by end user.
Important Notes
None

Low-Flow Pre-Rinse Spray Valve

https://www.caetrm.com/measure/SWFS013/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS013-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A low-flow pre-rinse spray valve (PRSV), defined by the rated flow rate in gallons per minute (gpm) for the with spray force rating:

- **0.4 ozf ≤ spray force of < 5.0 ozf:** flow rate ≤0.75 gpm
- **5.0 ounce-force (ozf) ≤ spray force ≤ 8.0 ozf:** flow rate ≤1.07 gpm

Spray Valve Flow Rate (gpm)	Statewide Measure Offering ID	Measure Offering Description
< 0.75	B	Low-flow pre-rinse spray valve, < 0.75 gpm
0.75 - 1.07	A	Low-flow pre-rinse spray valve, 0.75 - 1.07 gpm

Base Case Description

A PRSV that complies with Title 10 maximum flow rate requirement for the spray force rating:

- **0.4 ozf ≤spray force of <5.0 ozf:** flow rate ≤1gpm
- **5.0 ozf ≤spray force ≤8.0 ozf:** flow rate ≤1.2 gpm

Spray Valve Flow Rate (gpm)	Statewide Measure Offering ID	Existing Description	Standard Description
< 0.75	B	Standard pre-rinse spray valve, 1.0 gpm	Standard pre-rinse spray valve, 1.0 gpm
0.75 - 1.07	A	Standard pre-rinse spray valve, 1.2 gpm	Standard pre-rinse spray valve, 1.2 gpm

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	23.69	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	4,161.00	
Measure Case Costs ($)	91.13	Link
Base Case Costs ($)	67.87	
Incremental Cost ($)	23.26	
Effective Useful Life (years)	5.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
This measure is restricted to operations with natural gas water heaters only. Spray valves with <4 ozf are considered to be ineffective for most commercial food service applications and those with >8 ozf are considered too powerful for effective use in commercial foodservice dish washing applications. Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Rack Oven, Gas, Commercial

https://www.caetrm.com/measure/SWFS014/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS014-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A single- or double-rack, gas-fired commercial rack oven that has cooking energy efficiency ≥50%, based on American Society for Testing and Materials (ASTM) Standard Test Method F2093-11.

Oven Type	Statewide Measure Offering ID	Measure Offering Description
Double	B	Efficient, Commercial Rack Oven, Double, Gas
Single	A	Efficient, Commercial Rack Oven, Single, Gas

Base Case Description

A single- or double-rack, gas-fired commercial rack oven that has cooking energy efficiency <50%, based on ASTM F2093-11.

Oven Type	Statewide Measure Offering ID	Existing Description	Standard Description
Double	B	Standard, Commercial Rack Oven, Double, Gas	Standard, Commercial Rack Oven, Double, Gas
Single	A	Standard, Commercial Rack Oven, Single, Gas	Standard, Commercial Rack Oven, Single, Gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	439.50	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	40,486.68	Link
Base Case Costs ($)	36,171.32	
Incremental Cost ($)	4,315.36	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Refrigerated Chef Base

https://www.caetrm.com/measure/SWFS016/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS016-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A refrigerated chef base that meets the maximum daily energy consumption (MDEC) per ENERGY STAR® Program Requirements Product Specification for Commercial Refrigerators and Freezers Version 5.0.

Refrigerated Volume	Statewide Measure Offering ID	Measure Offering Description
0 to 7.5 cu ft.	E	Refrigerated volume, V, is constrained by 0 <= V < 7.5 ft3
15 to 22.5 cu ft.	G	Refrigerated volume, V, is constrained by 15 <= V < 22.5 ft3
22.5 to 30 cu ft.	H	Refrigerated volume, V, is constrained by 22.5 <= V < 30 ft3
7.5 to 15 cu ft.	F	Refrigerated volume, V, is constrained by 7.5 <= V < 15 ft3

Base Case Description

A refrigerated chef base that does not meet the ENERGY STAR requirements.

Refrigerated Volume	Statewide Measure Offering ID	Existing Description	Standard Description
0 to 7.5 cu ft.	E	Refrigerated volume between 0 - 7.5 ft3 and MDEC above ENERGY STAR required MDEC	Refrigerated volume between 0 - 7.5 ft3 and MDEC below ENERGY STAR required MDEC
15 to 22.5 cu ft.	G	Refrigerated volume between 15 - 22.5 ft3 and MDEC above ENERGY STAR required MDEC	Refrigerated volume between 15 - 22.5 ft3 and MDEC below ENERGY STAR required MDEC
22.5 to 30 cu ft.	H	Refrigerated volume between 22.5 - 30 ft3 and MDEC above ENERGY STAR required MDEC	Refrigerated volume between 22.5 - 30 ft3 and MDEC below ENERGY STAR required MDEC
7.5 to 15 cu ft.	F	Refrigerated volume between 7.5 - 15 ft3 and MDEC above ENERGY STAR required MDEC	Refrigerated volume between 7.5 - 15 ft3 and MDEC below ENERGY STAR required MDEC

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.11	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	935.50	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	13,139.19	Link
Base Case Costs ($)	11,096.32	
Incremental Cost ($)	2,042.88	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
The installed chef base must comply with the maximum MDEC value corresponding to its refrigerated volume. Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Automatic Conveyor Broiler, Commercial

https://www.caetrm.com/measure/SWFS017/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS017-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An automatic conveyor broiler that has a catalyst and an input rate less than 80 kBtu/hr or a dual stage/modulating gas valve with a capability of throttling the input rate below 80 kBtu/hr, based on American Society for Testing and Materials (ASTM) Standard Test Method F2239-10.

Conveyor Width (in)	Burger Lane Width	Statewide Measure Offering ID	Measure Offering Description
< 20	2	A	Automatic conveyor broiler belt width < 20 in
> 26	4	C	Automatic conveyor broiler belt width > 26 in
20 - 26	3	B	Automatic conveyor broiler belt width 20 - 26 in

Base Case Description

A natural convection broiler with no catalyst.

Conveyor Width (in)	Statewide Measure Offering ID	Existing Description	Standard Description
< 20	A	Standard conveyor broiler	Standard conveyor broiler
> 26	C	Standard conveyor broiler	Standard conveyor broiler
20 - 26	B	Standard conveyor broiler	Standard conveyor broiler

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	1.88	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	12,446.67	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	2,080.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	23,880.41	Link
Base Case Costs ($)	20,811.47	
Incremental Cost ($)	3,068.93	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
If the conveyor broiler has multiple belts on the same level, the entire cavity width shall be used for measurement. The existing (base case) broiler must be an automatic conveyor broiler than can maintain a temperature above 600°F with a tested idle rate greater than: • 40 kBtu/hr for a belt narrower than 20" • 60 kBtu/hr for a belt between 20" and 26" • 70 kBtu/hr for a belt wider than 26" The conveyor broiler must be replaced by a conveyor broiler similar in size or smaller. Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Undercounter Dishwasher, Commercial

https://www.caetrm.com/measure/SWFS018/06/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS018-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high- or low-temperature undercounter type dishwasher that meets (Tier 1) the maximum water consumption and idle energy rate specified by ENERGY STAR® Program Requirements Product Specification for Commercial Dishwasher Version 3.0 or exceeds (Tier 2) the maximum water consumption by 15%.

Tier	Temperature	Statewide Measure Offering ID	Measure Offering Description
Tier 1	High	A	Com undercounter dishwasher, high temp, tier 1 (gal/rack <= 0.86, idle rate <= 0.30)
Tier 1	Low	C	Com undercounter dishwasher, low temp, tier 1 (gal/rack <= 1.19, idle rate <= 0.25)
Tier 2	High	B	Com undercounter dishwasher, high temp, tier 2 (gal/rack <= 0.73, idle rate <= 0.30)
Tier 2	Low	D	Com undercounter dishwasher, low temp, tier 2 (gal/rack <= 1.01, idle rate <= 0.25)

Base Case Description

A high- or low-temperature undercounter type dishwasher that meets the maximum water consumption per ENERGY STAR Program Requirements Product Specification for Commercial Dishwasher Version 1.2 and the maximum idle energy rate per ENERGY STAR Program Requirements Product Specification for Commercial Dishwasher Version 2.0.

Tier	Temperature	Statewide Measure Offering ID	Existing Description	Standard Description
Tier 1	High	A	High temperature dishwasher ENERGY STAR 1.2	High temperature dishwasher ENERGY STAR 1.2
Tier 1	Low	C	Low temperature dishwasher ENERGY STAR 1.2	Low temperature dishwasher ENERGY STAR 1.2
Tier 2	High	B	High temperature dishwasher ENERGY STAR 1.2	High temperature dishwasher ENERGY STAR 1.2
Tier 2	Low	D	Low temperature dishwasher ENERGY STAR 1.2	Low temperature dishwasher ENERGY STAR 1.2

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.15	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	705.65	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	77.92	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	9,535.62	
Measure Case Costs ($)	6,008.61	Link
Base Case Costs ($)	4,911.47	
Incremental Cost ($)	1,097.13	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible. Other dishwasher types (conveyor, door-type, flight-type) are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Underfired Broiler, Commercial

https://www.caetrm.com/measure/SWFS019/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS019-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An underfired broiler with an input rate ≤22 kBtu/hr/len-ft while maintaining a surface temperature of 600°F, based on American Society for Testing and Materials (ASTM) Standard Test Method F1695-03.

Statewide Measure Offering ID	Measure Offering Description
A	Commercial underfired broiler - gas

Base Case Description

An underfired broiler with an input rate >22 kBtu/hr/len-ft while maintaining a surface temperature of 600 °F, based on ASTM F1695-03.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Standard underfired broiler	Standard underfired broiler

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Len-ft - length (feet)
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	217.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	3,206.93	Link
Base Case Costs ($)	2,232.01	
Incremental Cost ($)	974.92	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Fryer, Commercial, Fuel Substitution

https://www.caetrm.com/measure/SWFS021/05/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS021-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial electric fryer that meets or exceeds ENERGY STAR® Program Requirements Product Specification for Commercial Fryers Version 3.0 cooking efficiency and idle energy rate requirement replacing a non-ENERGY STAR gas fryer.

Statewide Measure Offering ID	Measure Offering Description
A	Efficient, commercial fryer, electric

Base Case Description

A commercial natural gas fryer that does not meet ENERGY STAR requirement. The baseline efficiency was determined from equipment tested by the Food Service Technology Center (FSTC) and Food Service Testing Lab (FSTL, SCG), updated in 2021.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Standard, commercial fryer, gas	Standard, commercial fryer, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, Nrs - Health/Medical - Nursing Home, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small
Building Vintage	Ex - Existing \ Median Age
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-10,500.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	1,110.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	13,656.71	Link
Base Case Costs ($)	8,049.21	
Incremental Cost ($)	5,607.50	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
The replacement of an electric fryer is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
This is a fuel substitution measure.

Convection Oven, Commercial, Fuel Substitution

https://www.caetrm.com/measure/SWFS022/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS022-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial electric convection oven that meets or exceeds ENERGY STAR® Program Requirements Product Specification for Commercial Ovens Version 3.0 cooking efficiency and idle energy rate requirement replacing a non-ENERGY STAR gas oven.

Oven Size	Statewide Measuring Offering ID	Measure Offering Description
Full	B	Efficient, commercial convection oven, full, gas to electric
Half	A	Efficient, commercial convection oven, half, gas to electric

Base Case Description

A commercial natural gas convection oven that does not meet ENERGY STAR requirement.

Oven Size	Statewide Measuring Offering ID	Existing Description	Standard Description
Full	B	Standard, commercial convection oven, full, gas	Standard, commercial convection oven, full, gas
Half	A	Standard, commercial convection oven, half, gas	Standard, commercial convection oven, half, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, Nrs - Health/Medical - Nursing Home, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small
Building Vintage	Ex - Existing \ Median Age
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-5,375.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	474.50	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	14,275.83	Link
Base Case Costs ($)	11,874.06	
Incremental Cost ($)	2,401.77	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
The replacement of an electric oven is not eligible. Installation of electric equipment where no equipment (gas or electric) existed before is not eligible and should use SWFS001.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
This is a fuel substitution measure. Due to their similar ENERGY STAR efficiency requirements and operating characteristics, full sized convention ovens with <5 pans should claim energy savings under the offering for half sized convection ovens.

Contact Conveyor Toaster, Commercial

https://www.caetrm.com/measure/SWFS023/04/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS023-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high-performance conveyor toaster (HPCT) with an energy use per sandwich ≤3.75 W/bun, based on American Society for Testing and Materials (ASTM) Standard Test Method F2380-18.

Statewide Measure Offering ID	Measure Offering Description
A	High performance conveyor toaster, commercial, <= 3.75 W/bun

Base Case Description

A standard performance conveyor toaster with an energy use per sandwich >3.75 W/bun, based on ASTM F2380-18.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Standard performance conveyor toaster, commercial, > 3.75 W/bun	Standard performance conveyor toaster, commercial, > 3.75 W/bun

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.36	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	2,340.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	3,618.86	Link
Base Case Costs ($)	2,775.97	
Incremental Cost ($)	842.88	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Only contact conveyor toasters are eligible in this measure. Radiant conveyor toasters are not eligible and should use SWFS025. Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Hot Food Holding Bins, Commercial

https://www.caetrm.com/measure/SWFS024/03/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS024-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high-performance holding bin with energy consumption <= 40 W/slot, based on ASTM Draft/Pending Standard Test Method for Performance of Holding Bins.

Statewide Measure Offering ID	Measure Offering Description
A	High performance holding bin <= 40 W/slot

Base Case Description

A holding bin with energy consumption >4 W/slot.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Standard holding bin > 40 W/slot	Standard holding bin > 40 W/slot

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.03	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	163.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	571.75	Link
Base Case Costs ($)	419.69	
Incremental Cost ($)	152.06	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Radiant Conveyor Toaster, Commercial

https://www.caetrm.com/measure/SWFS025/03/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS025-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A radiant conveyor toaster – in 120V, 208V, or 240V configuration – with an automatic energy savings or setback mode. Performance specification is based on American Society for Testing and Materials (ASTM) Standard Test Method F2380-18.

Outlet Voltage	Statewide Measure Offering ID	Measure Offering Description
120V	A	Efficient commercial radiant conveyor toaster, 120V
208V/240V	B	Efficient commercial radiant conveyor toaster, 208V/240V

Base Case Description

A radiant conveyor toaster that does not have an automatic setback mode.

Outlet Voltage	Statewide Measure Offering ID	Existing Description	Standard Description
120V	A	Commercial radiant conveyor toaster without automatic setback mode, 120V	Commercial radiant conveyor toaster without automatic setback mode, 120V
208V/240V	B	Commercial radiant conveyor toaster without automatic setback mode, 208V/240V	Commercial radiant conveyor toaster without automatic setback mode, 208V/240V

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	2,145.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,420.19	Link
Base Case Costs ($)	1,068.61	
Incremental Cost ($)	351.59	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Contact conveyor toasters are not eligible and should use SWFS023. Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Cooktop, Commercial

https://www.caetrm.com/measure/SWFS026/03/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS026-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial cooktop that has a cooking efficiency ≥81% for electric or ≥43% for gas, based on American Society for Testing and Materials (ASTM) Standard Test Method F1521-12 replacing a standard equipment of the same fuel.

Fuel Type	Statewide Measure Offering ID	Measure Offering Description
Electric	A	Efficient commercial cooktop, electric
Gas	B	Efficient commercial cooktop, gas

Base Case Description

A commercial cooktop that does not meet the measure case criteria.

Fuel Type	Statewide Measure Offering ID	Existing Description	Standard Description
Electric	A	Standard commercial cooktop, electric	Standard commercial cooktop, electric
Gas	B	Standard commercial cooktop, gas	Standard commercial cooktop, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.03	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	116.50	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	23.20	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	968.12	Link
Base Case Costs ($)	658.11	
Incremental Cost ($)	310.02	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
This is not a fuel substitution measure. An ENERGY STAR® Program Requirements Product Specification for Commercial Electric Cooktops became effective August 31, 2023 for the performance of efficient electric cooktops. However, the measure case was set slightly higher than the ENERGY STAR requirement. The ENERGY STAR requirement did not address commercial gas cooktops. Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Soup Well, Electric, Commercial

https://www.caetrm.com/measure/SWFS027/02/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS027-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial electric soup well that heats product through induction heating.

Statewide Measure Offering ID	Measure Offering Description
A	Induction commercial soup well

Base Case Description

A commercial electric soup well that does not use induction heating as its primary form of heating.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Electric soup well, no induction heating	Electric soup well, no induction heating

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.08	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	189.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	789.12	Link
Base Case Costs ($)	374.42	
Incremental Cost ($)	414.70	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
This measure pertains to all electric induction soup wells, both countertop and drop-in. Model can be both wet-well and dry-well designs. The following are ineligible: • Used or rebuilt equipment • Steam tables • Resistance heating soup wells
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Steam Table, Electric, Commercial

https://www.caetrm.com/measure/SWFS028/02/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS028-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial electric steam table that has an idle holding rate ≤160 Watts per 12-inch x 20-inch well, based on American Society for Testing and Materials (ASTM) Standard Test Method F1785.

Statewide Measure Offering ID	Measure Offering Description
A	Efficient commercial steam table, idle rate <= 160 W

Base Case Description

A commercial electric steam table that does not meet the measure case criteria.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Standard electric steam table	Standard electric steam table

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.10	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	283.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,413.18	Link
Base Case Costs ($)	1,135.86	
Incremental Cost ($)	277.32	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
The measure pertains to all countertop, drop-in, or buffet-style electric steam wells that hold 12-inch x 20-inch hotel pans. Model can be both wet-well and dry-well designs. The following are ineligible: • Used or rebuilt equipment • Soup wells • Warming drawers
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Rotisserie, Gas, Commercial

https://www.caetrm.com/measure/SWFS029/02/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS029-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial gas rotisserie that has a nameplate input rate <= 2,200 Btu/hr/bird, based on American Society for Testing and Materials (ASTM) Standard Test Method F1787-98. The equipment is classified by size, where:

- Small = 20 - 19 max bird capacity
- Medium = 30 - 40 max bird capacity
- Large = 46+ max bird capacity

Equipment Size	Statewide Measure Offering ID	Measure Offering Description
Large	C	Efficient commercial rotisserie, large, gas
Medium	B	Efficient commercial rotisserie, medium, gas
Small	A	Efficient commercial rotisserie, small, gas

Base Case Description

A commercial gas rotisserie that does not meet the measure case criteria.

Equipment Size	Statewide Measure Offering ID	Existing Description	Standard Description
Large	C	Standard commercial rotisserie, large, gas	Standard commercial rotisserie, large, gas
Medium	B	Standard commercial rotisserie, medium, gas	Standard commercial rotisserie, medium, gas
Small	A	Standard commercial rotisserie, small, gas	Standard commercial rotisserie, small, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	1,303.33	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	20,808.91	Link
Base Case Costs ($)	18,170.32	
Incremental Cost ($)	2,638.59	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Pressure Fryer, Commercial

https://www.caetrm.com/measure/SWFS030/02/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS030-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial pressure fryer that meets the qualifications below, based on American Society for Testing and Materials (ASTM) Standard Test Method F1964-21:

- Electric: cooking efficiency ≥77% and idle energy rate ≤700 W.
- Gas: cooking efficiency ≥35% and idle energy rate ≤9000 Btu/hr

Fuel Type	Statewide Measure Offering ID	Measure Offering Description
Electric	A	Efficient commercial pressure fryer, electric
Gas	B	Efficient commercial pressure fryer, gas

Base Case Description

A commercial pressure fryer that does not meet the measure case criteria.

Fuel Type	Statewide Measure Offering ID	Existing Description	Standard Description
Electric	A	Standard commercial pressure fryer, electric	Standard commercial pressure fryer, electric
Gas	B	Standard commercial pressure fryer, gas	Standard commercial pressure fryer, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.47	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	2,280.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	78.50	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	23,650.97	Link
Base Case Costs ($)	22,055.11	
Incremental Cost ($)	1,595.87	
Effective Useful Life (years)	11.50	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
This is not a fuel substitution measure. Measure case must replace a base case of the same fuel. Used or rebuilt equipment is not eligible. Open vat commercial fryers (non-pressurized) are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table.
Important Notes
None

Refrigerated Prep Table, Commercial

https://www.caetrm.com/measure/SWFS032/01/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS032-01

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A prep table evaluated under a modified version of ASTM Standard F2143-16, in which it is tested to have a total daily energy consumption ≤3.0kWh and maintain temperature of ≥33°F and ≤41°F for 95% or greater of the test period.

Statewide Measure Offering ID	Measure Offering Description
A	Efficient commercial refrigerated prep table, total daily energy consumption (TDEC) <= 3 kWh

Base Case Description

A prep table unable to meet either the energy consumption criteria of ≤3kWh or temperature holding criteria of ≥33°F and ≤41°F for 95% or greater of the test period when evaluated under the modified version of ASTM Standard F2143-16.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Standard commercial refrigerated prep table	Standard commercial refrigerated prep table

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.17	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	1,600.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,614.67	Link
Base Case Costs ($)	2,420.19	
Incremental Cost ($)	194.48	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
The measure pertains to all refrigerated prep tables that have been tested to the qualifying measure case criteria via the modified ASTM Standard F2143-16 test method. The following products are not eligible: • Used or rebuilt equipment • Countertop refrigerated prep tables
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
The testing procedure for evaluating prep table performance specifically follows section 10.5 of ASTM F2143-16 along with the following modifications: • Product used for holding: 99.9% propylene glycol within ½ in. from top of holding pans. • Test is to be conducted without consideration of the initial and final weight of test product (test product quantity is determined by volume). • Initial test product temperature for each pan to target 35°F ± 2°F. The test runs for 24 hours. The time factor provides a reasonable factor for units to exceed 41°F during defrost cycles. The total daily energy consumption is a combination of the 8-hour active period and 16-hour standby period. A regression analysis of the laboratory testing data, from a variety of prep tables with various technologies; construction; pan capacities; and top display area, showed a very weak correlation between capacity and total daily energy consumption. Ranging in pan capacity and display area were often fitted with compressors of the same capacity and rating, therefore not varying greatly in their energy consumption. As a result, the measure will not normalize for unit size or capacity.

Cooktop, Commercial, Fuel Substitution

https://www.caetrm.com/measure/SWFS034/01/

USE CATEGORY
FS - Food Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWFS034-01

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial electric cooktop evaluated under ASTM Standard F1521 that tests as having a cooking efficiency ≥81% replacing a natural gas cooktop. The measure case criteria is applied to each individual burner even when part of the same appliance package.

Statewide Measure Offering ID	Measure Offering Description
A	Efficient commercial cooktop, electric

Base Case Description

A natural gas cooktop that does not meet the measure case specification defined in SWFS026-02 Cooktop, Commercial

Statewide Measure Offering ID	Existing Description	Standard Description
A	Standard commercial cooktop, gas	Standard commercial cooktop, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-1,850.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	191.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,919.83	Link
Base Case Costs ($)	720.64	
Incremental Cost ($)	1,199.19	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWFS_Summary.xlsx

Others:

Program Exclusions
Used or rebuilt equipment is not eligible. Existing gas equipment and infrastructure must be property disposed.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
This is a fuel substitution measure, so the current base equipment must be a gas commercial cooktop.

Wall Furnace, Residential

https://www.caetrm.com/measure/SWHC001/07/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC001-07

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high efficiency residential fan wall furnace or gravity wall furnace that meets the input capacity, in Btu/hr, and the annual fuel utilization efficiency (AFUE) described in the Offering ID table. Offering D is a traditional fan wall furnace that requires an external power source to power the fans and replaces a base case fan wall furnace. Offering E is a new fan type wall furnace technology that uses a thermoelectric generator on the flue gas to power the fans with waste heat, thus allowing for an easy replacement of an existing gravity wall furnace without upgrading electrical wiring.

Measure Case Equipment Type	Base Case Equipment Type	Input Capacity	Statewide Measure Offering ID	Measure Offering Description
Fan Type Wall Furnace	Fan Type Wall Furnace	30000 Btu/hr	D	Fan wall furnace, residential, 30000 Btu/hr, 82% AFUE
Fan Type Wall Furnace	Gravity Wall Furnace	30000 Btu/hr	E	Fan wall furnace with thermoelectric generator, residential, 30000 Btu/hr, 82% AFUE
Gravity Wall Furnace	Gravity Wall Furnace	25000 Btu/hr	A	Gravity wall furnace, residential, 25000 Btu/hr, 70% AFUE
Gravity Wall Furnace	Gravity Wall Furnace	35000 Btu/hr	B	Gravity wall furnace, residential, 35000 Btu/hr, 70% AFUE
Gravity Wall Furnace	Gravity Wall Furnace	50000 Btu/hr	C	Gravity wall furnace, residential, 50000 Btu/hr, 70% AFUE

Base Case Description

A gravity or fan type wall furnace that meets the federal and Title 20 minimum efficiency requirements. Measure is a like-for-like replacement.

Measure Case Equipment Type	Base Case Equipment Type	Input Capacity	Statewide Measure Offering ID	Existing Description	Standard Description
Fan Type Wall Furnace	Fan Type Wall Furnace	30000 Btu/hr	D	Fan wall furnace, residential, 30000 Btu/hr, 75% AFUE	Fan wall furnace, residential, 30000 Btu/hr, 75% AFUE
Fan Type Wall Furnace	Gravity Wall Furnace	30000 Btu/hr	E	Gravity wall furnace, residential, 30000 Btu/hr, 66% AFUE	Gravity wall furnace, residential, 30000 Btu/hr, 66% AFUE

Measure Case Equipment Type	Base Case Equipment Type	Input Capacity	Statewide Measure Offering ID	Existing Description	Standard Description
Gravity Wall Furnace	Gravity Wall Furnace	25000 Btu/hr	A	Gravity wall furnace, residential, 25000 Btu/hr, 65% AFUE	Gravity wall furnace, residential, 25000 Btu/hr, 65% AFUE
Gravity Wall Furnace	Gravity Wall Furnace	35000 Btu/hr	B	Gravity wall furnace, residential, 35000 Btu/hr, 66% AFUE	Gravity wall furnace, residential, 35000 Btu/hr, 66% AFUE
Gravity Wall Furnace	Gravity Wall Furnace	50000 Btu/hr	C	Gravity wall furnace, residential, 50000 Btu/hr, 67% AFUE	Gravity wall furnace, residential, 50000 Btu/hr, 67% AFUE

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Eff_HP
Gas Impact Profile ID	WinterOnly

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	16.96	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,199.12	Link
Base Case Costs ($)	1,315.74	
Incremental Cost ($)	883.38	
Effective Useful Life (years)	30.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Measure is applicable for a like-for-like replacement of baseline equipment with the same measure case equipment. For offering E, the new fan type wall furnace technology requires no external power, allowing for a like-for-like replacement of gravity wall furnace. The following are ineligible: • Wall furnaces that are direct-vent systems that mount on an outside wall. • Gravity wall furnaces ≤19,000 Btu/hr and ≥60,000 Btu/hr. • Fan type wall furnaces ≤19,000 Btu/hr and ≥42,000 Btu/hr.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify unit meets the eligibility requirement in the Offering ID table. Verify unit is properly installed and commissioned.
Important Notes
None

Intermittent Pilot Light, Residential

https://www.caetrm.com/measure/SWHC002/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC002-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

Intermittent pilot light (IPL) controls, installed as an add-on unit to an existing host furnace or as an integrated unit in a new wall furnace, that will turn off the gravity wall furnace pilot light during times of no heat demand.

MeasAppType	Statewide Measure Offering ID	Measure Offering Description
AOE	A	The installation of IPL controls in an existing wall furnace or fireplace
NC	B	IPL controls integrated in a new high-efficiency gravity wall furnace

Base Case Description

A wall furnace with a continuous pilot light.

MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
AOE	A	Continuous pilot light	Continuous pilot light
NC	B	Continuous pilot light	Continuous pilot light

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NC - New Construction
Sector	Res - Residential
Building Type	MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	12.09	Link
Standard - Gas Savings (therm/yr)	12.09	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	438.42	Link
Base Case Costs ($)	0.00	
Incremental Cost ($)	438.42	
Effective Useful Life (years)	30.00	Link
Remaining Useful Life (years)	10.00	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Eligibility requirements for this measure are: • The wall furnace or fireplace insert shall be functional prior to the IPL retrofit. • The IPL control cannot replace an existing functional or non- functional pilot light control on a furnace or fireplace insert. • A furnace manufactured with integrated IPL controls can only replace a gravity wall furnace with a standing pilot light. • The IPL controls shall be capable of either using a battery or voltage line to effectively operate as intended. Used or rebuilt intermittent pilot lights (IPL) are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Any technology manufacturer qualifies for measure offerings specified, if safety and all other regulations are met and the technology is commercially available. Proof of purchase of a gravity wall furnace manufactured with an integrated intermittent pilot light must be provided.
Important Notes
The savings for the new construction measure offering represent the savings associated with the IPL controls only, and do not represent the savings due to the installation of a high-efficiency furnace.

Space Heating Boiler, Commercial & Multifamily

https://www.caetrm.com/measure/SWHC004/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2024

VERSION
SWHC004-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An efficient (non-condensing) or high efficiency (condensing) space heating boiler that meets the specifications described in the Offering ID table. Measure offerings are characterized by:

- **Boiler type:** Hot water versus Steam
- **Boiler capacity** (kBtu/hr)
- **Measure case efficiency:** Annual Fuel Utilization Efficiency - AFUE, Thermal Efficiency – TE, or Combustion Efficiency – CE
- **Reset control temperature:** Efficient boilers often use controls strategies to reset supply water temperature based on outdoor air (OA) temperature. This is the temperature range of the reset.

Base Case Description

A space heating boiler that meets the minimum efficiency stipulated by Title 20, Title 24, and federal code.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial, Res - Residential
Building Type	Com - Commercial, ECC - Education - Community College, ESe - Education - Secondary School, EUn - Education - University, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MFm - Residential Multi-family, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, Rt3 - Retail - Multistory Large
Building Vintage	Ex - Existing \ Median Age, New - New Construction, Old - Old, Rec - Recent
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:HVAC_Eff_HP, DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.59	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.55	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	29.55	Link
Base Case Costs ($)	23.33	
Incremental Cost ($)	6.23	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The boiler must be a natural gas equipment, used for space heating to induce human comfort. Domestic hot water boilers and service hot water boilers are not eligible for this measure.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Water-Cooled Chiller

https://www.caetrm.com/measure/SWHC005/04/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2025

VERSION
SWHC005-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A nonresidential water-cooled chiller with full load efficiency (in kW/ton) and integrated part load value (IPLV, in kW/ton) at or lower than the values specified in the Offering ID table.

- Tier 1, full-load rating (kW/ton) and integrated part load value (IPLV) must be 10% more efficient than Title 24 requirement.
- Tier 2, full-load rating (kW/ton) and integrated part load value (IPLV) must be 15% more efficient than Title 24 requirement.

Compressor Type	Capacity Range (tons)	Max kW/ton - Measure Case	Statewide Measure Offering ID	Measure Offering Description
Centrifugal w/ Conventional VSD	< 150	0.591	I	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (< 150 tons, 0.591 kW/ton, 0.374 IPLV)
Centrifugal w/ Conventional VSD	< 150	0.626	J	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (< 150 tons, 0.626 kW/ton, 0.396 IPLV)
Centrifugal w/ Conventional VSD	>= 600	0.497	G	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (>= 600 tons, 0.497 kW/ton, 0.323 IPLV)
Centrifugal w/ Conventional VSD	>= 600	0.527	H	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (>= 600 tons, 0.527 kW/ton, 0.342 IPLV)
Centrifugal w/ Conventional VSD	150 to 299	0.54	A	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (150 to 299 tons, 0.54 kW/ton, 0.34 IPLV)
Centrifugal w/ Conventional VSD	150 to 299	0.572	B	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (150 to 299 tons, 0.572 kW/ton, 0.36 IPLV)
Centrifugal w/ Conventional VSD	300 to 399	0.506	C	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (300 to 399 tons, 0.506 kW/ton, 0.332 IPLV)
Centrifugal w/ Conventional VSD	300 to 399	0.536	D	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (300 to 399 tons, 0.536 kW/ton, 0.351 IPLV)
Centrifugal w/ Conventional VSD	400 to 599	0.497	E	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (400 to 599 tons, 0.497 kW/ton, 0.323 IPLV)

Compressor Type	Capacity Range (tons)	Max kW/ton - Measure Case	Statewide Measure Offering ID	Measure Offering Description
Centrifugal w/ Conventional VSD	400 to 599	0.527	F	Water cooled centrifugal chiller w/1 conventional VSD compressor and condenser relief (400 to 599 tons, 0.527 kW/ton, 0.342 IPLV)
Variable Speed Screw	< 75	0.663	S	Water cooled variable speed screw chiller (< 75 tons, 0.663 kW/ton, 0.425 IPLV)
Variable Speed Screw	< 75	0.702	T	Water cooled variable speed screw chiller (< 75 tons, 0.702 kW/ton, 0.45 IPLV)
Variable Speed Screw	>= 600	0.497	Q	Water cooled variable speed screw chiller (>= 600 tons, 0.497 kW/ton, 0.323 IPLV)
Variable Speed Screw	>= 600	0.527	R	Water cooled variable speed screw chiller (>= 600 tons, 0.527 kW/ton, 0.342 IPLV)
Variable Speed Screw	150 to 299	0.578	K	Water cooled variable speed screw chiller (150 to 299 tons, 0.578 kW/ton, 0.374 IPLV)
Variable Speed Screw	150 to 299	0.612	L	Water cooled variable speed screw chiller (150 to 299 tons, 0.612 kW/ton, 0.396 IPLV)
Variable Speed Screw	300 to 599	0.531	M	Water cooled variable speed screw chiller (300 to 599 tons, 0.531 kW/ton, 0.349 IPLV)
Variable Speed Screw	300 to 599	0.563	N	Water cooled variable speed screw chiller (300 to 599 tons, 0.563 kW/ton, 0.369 IPLV)
Variable Speed Screw	75 to 149	0.638	O	Water cooled variable speed screw chiller (75 to 149 tons, 0.638 kW/ton, 0.417 IPLV)
Variable Speed Screw	75 to 149	0.675	P	Water cooled variable speed screw chiller (75 to 149 tons, 0.675 kW/ton, 0.441 IPLV)

Base Case Description

A variable speed water-cooled chiller that meets Title 24 maximum kW/ton load efficiency.

Compressor Type	Capacity Range (tons)	Max kW/ton - Measure Case	Statewide Measure Offering ID	Existing Description	Standard Description
Centrifugal w/ Conventional VSD	< 150	0.591	I	Water-cooled centrifugal chiller (0.695 kW/ton, 0.44 IPLV)	Water-cooled centrifugal chiller (0.695 kW/ton, 0.44 IPLV)
Centrifugal w/ Conventional VSD	< 150	0.626	J	Water-cooled centrifugal chiller (0.695 kW/ton, 0.44 IPLV)	Water-cooled centrifugal chiller (0.695 kW/ton, 0.44 IPLV)
Centrifugal w/ Conventional VSD	>= 600	0.497	G	Water-cooled centrifugal chiller (0.585 kW/ton, 0.38 IPLV)	Water-cooled centrifugal chiller (0.585 kW/ton, 0.38 IPLV)
Centrifugal w/ Conventional VSD	>= 600	0.527	H	Water-cooled centrifugal chiller (0.585 kW/ton, 0.38 IPLV)	Water-cooled centrifugal chiller (0.585 kW/ton, 0.38 IPLV)
Centrifugal w/ Conventional VSD	150 to 299	0.54	A	Water-cooled centrifugal chiller (0.635 kW/ton, 0.4 IPLV)	Water-cooled centrifugal chiller (0.635 kW/ton, 0.4 IPLV)
Centrifugal w/ Conventional VSD	150 to 299	0.572	B	Water-cooled centrifugal chiller (0.635 kW/ton, 0.4 IPLV)	Water-cooled centrifugal chiller (0.635 kW/ton, 0.4 IPLV)
Centrifugal w/ Conventional VSD	300 to 399	0.506	C	Water-cooled centrifugal chiller (0.595 kW/ton, 0.39 IPLV)	Water-cooled centrifugal chiller (0.595 kW/ton, 0.39 IPLV)

Compressor Type	Capacity Range (tons)	Max kW/ton - Measure Case	Statewide Measure Offering ID	Existing Description	Standard Description
Centrifugal w/ Conventional VSD	300 to 399	0.536	D	Water-cooled centrifugal chiller (0.595 kW/ton, 0.39 IPLV)	Water-cooled centrifugal chiller (0.595 kW/ton, 0.39 IPLV)
Centrifugal w/ Conventional VSD	400 to 599	0.497	E	Water-cooled centrifugal chiller (0.585 kW/ton, 0.38 IPLV)	Water-cooled centrifugal chiller (0.585 kW/ton, 0.38 IPLV)
Centrifugal w/ Conventional VSD	400 to 599	0.527	F	Water-cooled centrifugal chiller (0.585 kW/ton, 0.38 IPLV)	Water-cooled centrifugal chiller (0.585 kW/ton, 0.38 IPLV)
Variable Speed Screw	< 75	0.663	S	Water-cooled screw chiller (0.78 kW/ton, 0.5 IPLV)	Water-cooled screw chiller (0.78 kW/ton, 0.5 IPLV)
Variable Speed Screw	< 75	0.702	T	Water-cooled screw chiller (0.78 kW/ton, 0.5 IPLV)	Water-cooled screw chiller (0.78 kW/ton, 0.5 IPLV)
Variable Speed Screw	>= 600	0.497	Q	Water-cooled screw chiller (0.585 kW/ton, 0.38 IPLV)	Water-cooled screw chiller (0.585 kW/ton, 0.38 IPLV)
Variable Speed Screw	>= 600	0.527	R	Water-cooled screw chiller (0.585 kW/ton, 0.38 IPLV)	Water-cooled screw chiller (0.585 kW/ton, 0.38 IPLV)
Variable Speed Screw	150 to 299	0.578	K	Water-cooled screw chiller (0.68 kW/ton, 0.44 IPLV)	Water-cooled screw chiller (0.68 kW/ton, 0.44 IPLV)
Variable Speed Screw	150 to 299	0.612	L	Water-cooled screw chiller (0.68 kW/ton, 0.44 IPLV)	Water-cooled screw chiller (0.68 kW/ton, 0.44 IPLV)
Variable Speed Screw	300 to 599	0.531	M	Water-cooled screw chiller (0.625 kW/ton, 0.41IPLV)	Water-cooled screw chiller (0.625 kW/ton, 0.41IPLV)
Variable Speed Screw	300 to 599	0.563	N	Water-cooled screw chiller (0.625 kW/ton, 0.41IPLV)	Water-cooled screw chiller (0.625 kW/ton, 0.41IPLV)
Variable Speed Screw	75 to 149	0.638	O	Water-cooled screw chiller (0.75 kW/ton, 0.49 IPLV)	Water-cooled screw chiller (0.75 kW/ton, 0.49 IPLV)
Variable Speed Screw	75 to 149	0.675	P	Water-cooled screw chiller (0.75 kW/ton, 0.49 IPLV)	Water-cooled screw chiller (0.75 kW/ton, 0.49 IPLV)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	ECC - Education - Community College, ESe - Education - Secondary School, EUn - Education - University, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, Rt3 - Retail - Multistory Large
Building Vintage	Any - Any Vintage, Ex - Existing \ Median Age, New - New Construction, Old - Old, Rec - Recent
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.02	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	33.33	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	768.42	Link
Base Case Costs ($)	597.41	
Incremental Cost ($)	171.00	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Title 24 also specifies alternate efficiency compliance paths for chiller technology. Path A requires a high full-load efficiency while Path B sets a lower minimum full-load efficiency than Path A but requires a higher minimum IPLV. This measure falls under Path B compliance. The equipment selection must be based on both full-load and part-load conditions. Water-cooled chillers with a leaving evaporator fluid temperature higher than 32°F shall show Path B compliance with Table 110.2-D of Title 24 when tested or certified with water at standard rating conditions. In a central or multi-chiller cooling plant with lead-lag configuration, "lead" chillers are not eligible. Energy impacts are determined with the assumption that the chiller is not a lead chiller. All measures related to constant speed screw, constant speed centrifugal, and frictionless chillers are excluded due to the stringency of the tiers specified for the 2023 update of the Database of Energy Efficient Resources (DEER) and equipment availability in the market.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the unit meets the full load and integrated part load efficiency requirement in the Offering ID table.
Important Notes
None

Demand Control Ventilation for Single Zone HVAC

https://www.caetrm.com/measure/SWHC006/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC006-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of demand control ventilation (DCV) with carbon dioxide (CO2) sensor to an existing packaged single zone HVAC unit with an economizer.

System Type	Statewide Measure Offering ID	Measure Offering Description
AC Unit only	G	Add DCV to an existing unitary AC only unit with an existing economizer
AC Unit with Gas Heat	H	Add DCV to an existing unitary AC with gas furnace unit with an existing economizer
Heat Pump	I	Add DCV to an existing unitary HP unit with an existing economizer

Base Case Description

An existing single zone unitary cooling units with gas heat, cooling only units, and heat pumps with airside economizers, but no ability to use DCV.

System Type	Statewide Measure Offering ID	Existing Description	Standard Description
AC Unit only	G	Existing unitary AC system with an economizer but no DCV	Existing unitary AC system with an economizer but no DCV
AC Unit with Gas Heat	H	Existing unitary AC with gas furnace system with an economizer but no DCV	Existing unitary AC with gas furnace system with an economizer but no DCV
Heat Pump	I	Existing unitary heat pump system with an economizer but no DCV	Existing unitary heat pump system with an economizer but no DCV

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, MBT - Manufacturing Biotech, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.06	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	68.24	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	4.76	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	61.21	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	6.67	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The existing system must ventilate continuously during occupied hours and may not have any other device previously installed that is intended to perform DCV such as an occupancy sensor that controls ventilation rate. The measure shall only be applied where it will result in a reduction to the overall ventilation that is supplied for the space. The existing system must have an operable airside economizer and a digital economizer controller with the capability to control the damper in response to a CO2 sensor signal. Otherwise, an advanced digital economizer controller (ADEC) may be installed, but this measure does not assume the cost for new ADEC in its analysis. The economizer high limit must be optimized for the climate per 2025 Title 24 Table 140.4-G. Economizer repair and adjustment scopes may be incentivized through measure packages SWSV005 and SWSV010. The CO2 sensor can be either mounted in the return air duct or the zone. Systems with existing devices, such as occupancy sensors, intended to perform DCV operation are not eligible. The existing system must be packaged single zone DX cooling unit with gas heat, cooling only unit, or heat pump.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Variable Speed Drive for a Central Plant System

https://www.caetrm.com/measure/SWHC008/02/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2024

VERSION
SWHC008-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a variable speed drive (VSD) on a chilled water pump (CHWP) or on a condenser water pump (CWP) in a water-cooled central plant

System Type	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
Chilled Water Pump	AOE	A	Variable frequency drive on chilled water pump, AOE
Condenser Water Pump	AOE	B	Variable frequency drive on condenser water pump, AOE
Condenser Water Pump	NC	C	Variable frequency drive on condenser water pump, NC

Base Case Description

The base case is the existing customer equipment or Title 24-compliant equipment based on building vintage. Title 24 does not require VSDs on CWPs but does require VSDs on a CHWP since 2005; hence, this measure is only eligible for CHWP vintages before 2005 including proof of existing condition.

System Type	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Chilled Water Pump	AOE	A	No VFD on chilled water pump, AOE	No VFD on chilled water pump, AOE
Condenser Water Pump	AOE	B	No VFD on condenser water pump, AOE	No VFD on condenser water pump, AOE
Condenser Water Pump	NC	C	No VFD on condenser water pump, NC	No VFD on condenser water pump, NC

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NC - New Construction
Sector	Com - Commercial
Building Type	ECC - Education - Community College, ESe - Education - Secondary School, EUn - Education - University, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, Rt3 - Retail - Multistory Large
Building Vintage	Ex - Existing \ Median Age, New - New Construction, Old - Old
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Rated-HP - nameplate HP
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.21	Link
Standard - Peak Demand Reduction (kW)	0.07	
Existing - Electric Savings (kWh/yr)	1,192.75	Link
Standard - Electric Savings (kWh/yr)	549.94	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	506.75	Link
Base Case Costs ($)	0.00	
Incremental Cost ($)	506.75	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
All new variable speed drives (VSDs) and motor equipment must be UL Listed and specifically rated for the application. For building types not listed in this measure but use water-cooled central plant systems, measure savings can be mapped under “Office Small,” which has relatively lower savings. Constant speed Condenser Water Pump (CWP) and Chilled Water Pumps (CHWP) not already equipped with a VSD are eligible. CHWP offerings are only eligible if the host equipment (CHWP) was installed before 2005 and the chilled water coils are controlled by three-way valves. The simultaneous operation of the two measure offerings has interactive effects and impacts energy savings. If both measures are implemented for vintages 96 and 03, then the measures must be cascaded, and the total (aggregated) estimated savings will be slightly less than sum of the savings of the individual measure offerings. Given the vintage restrictions on the CHWP VSD measure offering, it is expected that this measure primarily will support CWP VSD implementation. This measure excludes central plant equipment under any type of plant optimization and/or retro-commissioning at both the central plant and/or system HVAC levels; and/or central plants supporting “process” load; and/or industrial applications serving non-HVAC “space comfort” loads; and/or central plant operating with thermal energy storage. All non-standard central plant applications shall be incentivized under custom programs.
Quality Assurance: Design, Installation, Commissioning, and Operation
The installation contractor or customer must: • Verify and document central plant vintage via “as-built” drawings or similar • Verify and document that existing incentivized pump operates at constant volume excluding modulating speed controls. • Verify and document that zone distribution system (e.g., fan coil and/or air handler unit) is controlled by 3-way CHW valves. Successful implementation of this measure will depend greatly on the characteristics of the installed system. For a VSD addition to the CWP special attention must be given to the condenser water flow turndown capabilities of the existing chiller(s). It is imperative that chiller manufacturer selection data and retrofit information be reviewed carefully to ensure that the existing chiller(s) is (are) rated to operate at the selected minimum condenser water flow, and that the control strategy includes capability to increase the flow as needed to keep the leaving condenser temperature from exceeding an upper limit dependent on the existing chiller. For a CHWP, the designers should evaluate the flow control at the cooling/heating coil in the air-handling units and should consider a potential retrofit from 3-way to 2-way valve and/or pressure differential sensors and controls that may be needed to adequately complete the measure. In all cases, measure installation must meet all applicable regulations including but not limited to the current California Building Energy Efficiency Standards (Title 24) and the National Electrical Code.
Important Notes
None

Supply Fan Controls, Commercial

https://www.caetrm.com/measure/SWHC009/05/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

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SWHC009-05

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12/31/2028

Measure Case and Base Case Description:

Offering ID

A supply fan that is set to “Auto” or intermittent during unoccupied periods.

System Type	Statewide Measure Offering ID	Measure Offering Description
AC Only Unit	A	Unoccupied fan control, AC only unit
AC Unit with Gas Heat	B	Unoccupied fan control, AC unit with gas heat
Heat Pump	C	Unoccupied fan control, heat pump
Variable Volume AC Unit with Gas Heat	D	Unoccupied fan control, variable volume AC unit with gas heat

Base Case Description

Existing HVAC equipment with the supply fan operating continuously during unoccupied periods.

System Type	Statewide Measure Offering ID	Existing Description	Standard Description
AC Only Unit	A	Supply fan operating continuously during unoccupied periods, AC only unit	Unoccupied fan control, AC only unit
AC Unit with Gas Heat	B	Supply fan operating continuously during unoccupied periods, AC unit with gas heat	Unoccupied fan control, AC unit with gas heat
Heat Pump	C	Supply fan operating continuously during unoccupied periods, heat pump	Unoccupied fan control, heat pump
Variable Volume AC Unit with Gas Heat	D	Supply fan operating continuously during unoccupied periods, variable volume AC unit with gas heat	Unoccupied fan control, variable volume AC unit with gas heat

Applicable Parameters:

Parameters	Labels
Measure Application Type	BRO-RCx - BRO-Retrocommissioning
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.06	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	959.60	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	-1.85	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	7.84	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	3.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
This measure requires field documentation of the existing conditions that verify the measure was necessary and that the measure was successfully applied. Additional technician verification of thermostat wiring and the number of cooling stages that should be performed to ensure that the first stage of cooling is dedicated to economizer operation and two-stage thermostat operation is enabled where possible. The controller changeover setpoint should be adjusted appropriately based on the available number of thermostat cooling stages. Contractors and technicians that implement the measure must meet all certification and training requirements in accordance with program requirements. This measure does not apply if • The rooftop unit (RTU) has a fully operational and/or non-snap disc sensor and is adjusted to the appropriate changeover setpoint based on the number of thermostat stages available for cooling. • The unoccupied supply fan operation is already set to “Auto” or intermittent • Supply fan is switched OFF during unoccupied periods. Process load is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Ensure that the existing unit does not already have the supply fan in automatic mode or switched OFF during unoccupied periods.
Important Notes
The energy savings analysis excluded the following building types due to the model not having these building prototypes: • Offering SWHC009C Heat Pump (cDXHP): Warehouse – Refrigerated (WRf). • Offering SWHC009D Variable Volume AC Unit with Gas Heat (cPVVG): Assembly (Asm), Education - Primary School (EPr), Education - Relocatable Classroom (ERC), Grocery (Gro), Manufacturing Light Industrial (MLI), Restaurant - Fast-Food (RFF), Restaurant - Sit-Down (RSD), Retail - Single-Story Large (RtL), Retail - Small (RtS), Storage - Conditioned (SCn), and Warehouse – Refrigerated (WRf).

Furnace, Commercial

https://www.caetrm.com/measure/SWHC011/03/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2024

VERSION
SWHC011-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high-efficiency central natural gas furnace, with a built-in variable speed motor (VSM), meeting the specified annual fuel utilization efficiency – AFUE.

Efficiency	Statewide Measure Offering ID	Measure Offering Description
AFUE 95%	A	High efficiency furnace, commercial, 95% AFUE, with VSM

Base Case Description

A nonresidential gas furnace that meets the 2015 federal standard requirements of 81% AFUE for weatherized furnaces.

Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
AFUE 95%	A	Packaged furnace, 81% AFUE	Packaged furnace, 81% AFUE

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age, New - New Construction, Old - Old, Rec - Recent
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	WinterOnly

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.37	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	112.99	Link
Base Case Costs ($)	62.84	
Incremental Cost ($)	50.15	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Measure must meet the following eligibility: • For normal replacement (NR), the new furnace must replace an existing gas furnace. • The replacement furnace must be a weatherized unit. • Furnaces that meet or exceed the eligibility requirements are listed on the Furnace Rebate Table (https://www.ahridirectory.org/ahridirectory/pages/home.aspx) • Combustion condensate management must meet local codes and demonstrate adequate freeze protection in colder climate rooftop environments. Manufacturer installation instructions must be followed. • Because combustion condensate is acidic, it must be neutralized by an approved dilution or neutralizing device before discharging into the plumbing system. • Only residential furnaces installed in a small commercial establishment qualify for the rebate. • A brushless DC motor, also known as an electronically commutated motor (ECM), is also eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
There are a limited number of units on the market that meet the measure case description, and the units which meet it currently do not meet the low NOx spec to be sold in California.

HVAC Occupancy Sensor, Classroom

https://www.caetrm.com/measure/SWHC012/04/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

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SWHC012-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A programmable thermostat with an integrated occupancy sensor that controls a packaged HVAC unit that serves an education classroom. The thermostat has unoccupied setback temperature control during closed hours (evenings, weekends, furlough days, and holidays) and reverts to unoccupied setback temperatures when there is no occupancy sensed for a predetermined duration.

System Type	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
DX Furnace	NC	C	Classroom HVAC occupancy sensor, DX furnace, EPr and ESe, NC
DX Furnace	NR	D	Classroom HVAC occupancy sensor, DX furnace, EPr and ESe, NR
DX Heat Pump	NC	E	Classroom HVAC occupancy sensor, heat pump, ERC, NC
DX Heat Pump	NR	F	Classroom HVAC occupancy sensor, heat pump, ERC, NR

Base Case Description

A programmable thermostat without an occupancy sensor and has unoccupied setback temperature control during closed hours.

System Type	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
DX Furnace	NC	C	No classroom HVAC occupancy sensor, DX furnace, EPr and ESe	No classroom HVAC occupancy sensor, DX furnace, EPr and ESe
DX Furnace	NR	D	No classroom HVAC occupancy sensor, DX furnace, EPr and ESe	No classroom HVAC occupancy sensor, DX furnace, EPr and ESe
DX Heat Pump	NC	E	No classroom HVAC occupancy sensor, heat pump, ERC	No classroom HVAC occupancy sensor, heat pump, ERC
DX Heat Pump	NR	F	No classroom HVAC occupancy sensor, heat pump, ERC	No classroom HVAC occupancy sensor, heat pump, ERC

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Area-ft2-BA - square feet of Building area
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC, DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.23	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.01	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	0.24	Link
Base Case Costs ($)	0.10	
Incremental Cost ($)	0.14	
Effective Useful Life (years)	11.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
This control equipment includes, but is not limited to: • An occupancy sensing thermostat • An occupancy sensor (wired or wireless) • Wiring (if wired) • Signal receiver and power pack (if wireless) Existing occupancy sensors that are not operational or are not meeting the existing service requirements are eligible for this measure under normal replacement. The measure is only applicable for classrooms in primary schools (EPr), secondary schools (ESe), and re-locatable classrooms (ERC). Community colleges and universities are not eligible, unless they have relocatable classrooms with packaged HVAC units. Any existing HVAC type is eligible for this measure, however, installed thermostats must be able to control the temperature of the classroom separately from the rest of the building.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
Measure offerings are specified for various education building types and the corresponding default HVAC systems.

Unitary Air-Cooled Air Conditioner, Over 65 kBtu/hr, Commercial

https://www.caetrm.com/measure/SWHC013/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

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SWHC013-06

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12/31/2028

Measure Case and Base Case Description:

Offering ID

A nonresidential air-cooled air conditioner or heat pump with a cooling capacity ≥65 kBtu/hr, meeting the specified minimum full-load energy efficiency ratio (EER) and/or coefficient of performance (COP).

Base Case Description

An existing nonresidential air-cooled air conditioner or heat pump with cooling capacity >65 kBtu/hr that meets Title 20, Title 24, and federal minimum efficiency standards.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age, New - New Construction, Old - Old, Rec - Recent
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC, DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.06	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	49.11	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,007.27	Link
Base Case Costs ($)	1,858.19	
Incremental Cost ($)	149.07	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
All unitary direct expansion (DX) equipment is eligible. For the normal replacement measure application type, the replacement equipment must be “like for like” (e.g., a heat pump for a heat pump). Likewise, for the new construction measure application type, although there is no existing system being replaced, the baseline fuel type must be the same as the equipment being installed (i.e., no fuel substitution) for the purposes of savings claims. Because of the large number of evaporator/condenser combinations available for split systems (several thousand combinations) some averages and/or minimum efficiencies may be used for certain groups of equipment. Equipment must use refrigerants that are compliant with all applicable federal and state standards. Residential and light commercial air conditioning (AC) and heat pump (HP) units manufactured or imported on or after 1/1/2025 may not use a refrigerant with ≥700 global warming potential (GWP). Commercial AC and HP units manufactured on or after 1/1/2025 may not use a refrigerant with ≥750GWP.
Quality Assurance: Design, Installation, Commissioning, and Operation
The model number is used to ascertain the equipment efficiency of a package system. The equipment efficiency of a split system will be based on a combination of the condenser and evaporator model numbers provided by a distributor. The efficiency rating will then be verified according to the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) or Consortium for Energy Efficiency (CEE) database or manufacturers specification sheets. Field inspections should be performed to verify the condenser/unit model number for quality assurance purposes. Verify that the new unit meets minimum efficiency requirements in the Offering ID table. Verify that the new unit is properly installed and commissioned.
Important Notes
None

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

https://www.caetrm.com/measure/SWHC014/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

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SWHC014-06

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12/31/2028

Measure Case and Base Case Description:

Offering ID

A nonresidential air-cooled air conditioner or heat pump with a cooling capacity 18 - 65 kBtu/hr, meeting the specified minimum seasonal energy efficiency ratio (SEER2).

Base Case Description

An existing nonresidential air-cooled air conditioner or heat pump with cooling capacity 18 - 65 kBtu/hr that meets federal minimum efficiency standards.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age, New - New Construction, Old - Old, Rec - Recent
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC, DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.06	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	57.13	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,965.12	Link
Base Case Costs ($)	2,570.51	
Incremental Cost ($)	394.61	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Equipment must use refrigerants that are compliant with all applicable federal and state standards. Residential and light commercial air conditioning (AC) and heat pump (HP) units manufactured or imported on or after 1/1/2025 may not use a refrigerant with ≥700 global warming potential (GWP). Commercial AC and HP units manufactured on or after 1/1/2025 may not use a refrigerant with ≥750GWP. For the normal replacement measure application type, the replacement equipment must be “like for like” (e.g., a heat pump for a heat pump). Likewise, for the new construction measure application type, although there is no existing system being replaced, the baseline fuel type must be the same as the equipment being installed (i.e., no fuel substitution) for the purposes of savings claims. Package terminal air conditioning units, which are units manufactured for installation through a wall or window and are usually ≤2 tons.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the new unit meets minimum efficiency requirements in the Offering ID table. Verify that the new unit is properly installed and commissioned.
Important Notes
None

VSD for HVAC Fan Controls, Commercial

https://www.caetrm.com/measure/SWHC018/05/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC018-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An installation of a variable speed drive (VSD) and associated controls on an existing constant speed HVAC supply or return fan.

Statewide Measure Offering ID	Measure Offering Description
A	VSD on HVAC fan control

Base Case Description

A constant speed AC-powered motor connected to forward curved fans with discharge dampers, otherwise known as a damper-controlled variable air volume (VAV) system.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Damper controlled VAV with constant speed fan motor	Damper controlled VAV with constant speed fan motor

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, ECC - Education - Community College, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Rated-HP - nameplate HP
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.06	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	616.73	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	-4.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	452.53	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	15.00	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Eligibility requirements include: • The fan motor rated hp must be ≤100 hp. • The existing fan motor must operate at constant speed. • As an add-on equipment installation, the VSD must be applied to the HVAC supply or return air system. • Any other throttling devices, such as inlet vanes or bypass dampers, and throttling valves, must be removed or permanently disabled. • If the existing constant speed fan motor must be replaced because it cannot accommodate a VSD, such as it not being inverter rated, then a new fan motor may be installed that works with the VSD. This is allowed because fan motor replacements are considered repairs and do not trigger Title 24 code. However, no additional energy savings shall be claimed through this measure package for increased fan motor efficiency and the fan motor replacement cost shall not be considered as part of the measure install cost. The following are not eligible: • Multiple-speed or variable speed motors (VSM) • Exhaust fans. • Installations in constant air volume (CAV) systems
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Air-Cooled Screw Chiller, Path A

https://www.caetrm.com/measure/SWHC020/05/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC020-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A nonresidential constant speed air-cooled (screw) chiller meeting the Path A full load efficiency (in energy efficiency ratio - EER) and integrated part load value (IPLV) specified in the Offering ID table.

Capacity	Energy Efficiency Ratio (EER)	Integrated Part Load Value (IPLV)	Statewide Measure Offering ID	Measure Offering Description
< 150 tons	11.1	15.1	C	Air cooled constant speed screw chiller (< 150 tons, 11.1 EER, 15.1 IPLV)
< 150 tons	12.1	16.4	F	Air cooled constant speed screw chiller (< 150 tons, 12.1 EER, 16.4 IPLV)
>= 150 tons	11.1	15.4	A	Air cooled constant speed screw chiller (>= 150 tons, 11.1 EER, 15.4 IPLV)
>= 150 tons	12.1	16.8	E	Air cooled constant speed screw chiller (>= 150 tons, 12.1 EER, 16.8 IPLV)

Base Case Description

A constant speed air-cooled (screw) chiller that meets 2022 Title 24 minimum efficiency requirements in both full load and integrated part load conditions.

Capacity	Energy Efficiency Ratio (EER)	Integrated Part Load Value (IPLV)	Statewide Measure Offering ID	Existing Description	Standard Description
< 150 tons	11.1	15.1	C	Air cooled constant speed screw chiller (< 150 tons, 10.1 EER, 13.7 IPLV)	Air cooled constant speed screw chiller (< 150 tons, 10.1 EER, 13.7 IPLV)
< 150 tons	12.1	16.4	F	Air cooled constant speed screw chiller (< 150 tons, 10.1 EER, 13.7 IPLV)	Air cooled constant speed screw chiller (< 150 tons, 10.1 EER, 13.7 IPLV)
>= 150 tons	11.1	15.4	A	Air cooled constant speed screw chiller (>= 150 tons, 10.1 EER, 14 IPLV)	Air cooled constant speed screw chiller (>= 150 tons, 10.1 EER, 14 IPLV)
>= 150 tons	12.1	16.8	E	Air cooled constant speed screw chiller (>= 150 tons, 10.1 EER, 14 IPLV)	Air cooled constant speed screw chiller (>= 150 tons, 10.1 EER, 14 IPLV)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Com - Commercial, ECC - Education - Community College, ESe - Education - Secondary School, EUn - Education - University, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, Rt3 - Retail - Multistory Large
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.06	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	139.53	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,074.58	Link
Base Case Costs ($)	881.16	
Incremental Cost ($)	193.42	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The energy and demand impacts of this measure are applicable only to commercial buildings with chiller equipment serving space comfort. Other chiller measures serving non-space comfort and/or processes and/or industrial applications are not eligible. In a central or multi-chiller cooling plant with lead-lag configuration, "lead" chillers are not eligible. Energy impacts are determined with the assumption that the chiller is not a lead chiller. Per Section 140.4 (j) of the 2022 California Building Energy Efficiency Standards (Title-24), chilled water plants shall not have more than 300 tons provided by air cooled chillers, except where the water quality at the building site fails to meet the manufacturer specifications for the use of water-cooled chillers, chillers that are used to charge a thermal energy storage system with a design temperature of less than 40°F, or systems serving healthcare facilities.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

VFDs for Unitary HVAC Systems, Commercial

https://www.caetrm.com/measure/SWHC023/07/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC023-07

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a variable frequency drive (VFD) to an existing packaged single-zone HVAC unit with an economizer to provide cooling when conditions permit. The measure also includes the options to add a new code efficient inverter rated motor or a permanent magnet motor (PMM) motor.

Host System Type	Motor	Statewide Measure Offering ID	Measure Offering Description
AC Unit Only	Existing motor	Y	Install VFD on existing motor in unitary AC system
AC Unit Only	New PMM	Z	Install VFD and new permanent magnet motor in unitary AC system
AC Unit Only	New standard efficient inverter rated motor	AA	Install VFD and new standard efficiency motor in unitary AC system
AC Unit with Gas Heat	Existing motor	AB	Install VFD on existing motor in unitary AC with gas furnace system
AC Unit with Gas Heat	New PMM	AC	Install VFD and new permanent magnet motor in unitary AC with gas furnace system
AC Unit with Gas Heat	New standard efficient inverter rated motor	AD	Install VFD and new standard efficiency motor in unitary AC with gas furnace system
Heat Pump	Existing motor	AE	Install VFD on existing motor in unitary heat pump system
Heat Pump	New PMM	AF	Install VFD and new permanent magnet motor in unitary heat pump system
Heat Pump	New standard efficient inverter rated motor	AG	Install VFD and new standard efficiency motor in unitary heat pump system

Base Case Description

The existing single-zone package HVAC unit with a functional economizer and single speed supply fan motor.

Host System Type	Motor	Statewide Measure Offering ID	Existing Description	Standard Description
AC Unit Only	Existing motor	Y	Existing constant speed motor in unitary AC system	Existing constant speed motor in unitary AC system
AC Unit Only	New PMM	Z	Existing constant speed motor in unitary AC system	Existing constant speed motor in unitary AC system
AC Unit Only	New standard efficient inverter rated motor	AA	Existing constant speed motor in unitary AC system	Existing constant speed motor in unitary AC system
AC Unit with Gas Heat	Existing motor	AB	Existing constant speed motor in unitary AC with gas furnace system	Existing constant speed motor in unitary AC with gas furnace system
AC Unit with Gas Heat	New PMM	AC	Existing constant speed motor in unitary AC with gas furnace system	Existing constant speed motor in unitary AC with gas furnace system
AC Unit with Gas Heat	New standard efficient inverter rated motor	AD	Existing constant speed motor in unitary AC with gas furnace system	Existing constant speed motor in unitary AC with gas furnace system
Heat Pump	Existing motor	AE	Existing constant speed motor in unitary heat pump system	Existing constant speed motor in unitary heat pump system
Heat Pump	New PMM	AF	Existing constant speed motor in unitary heat pump system	Existing constant speed motor in unitary heat pump system
Heat Pump	New standard efficient inverter rated motor	AG	Existing constant speed motor in unitary heat pump system	Existing constant speed motor in unitary heat pump system

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, ECC - Education - Community College, EPr - Education - Primary School, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC, DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	1,112.59	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	-1.83	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	414.64	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	6.67	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Existing system requirements include: • The existing system must have a constant volume supply fan. Existing two-speed or multi-speed fans are not eligible. • The existing system must have an operable airside economizer installed. Maintenance and repairs to economizer should be completed prior to or in conjunction with this measure. Economizer repair and adjustment scopes may be incentivized through measure packages SWSV005 and SWSV010. Installation requirement: • “Existing motors” offerings must only install the new VFD, not a new motor. • &“New standard efficient inverter rated motor” and “New PMM” offerings must have: • A new code efficient inverter rated motor. Although this measure offering was designed for code efficient induction motors, new non-induction motors that do not meet the requirements for the PMM offerings can be eligible for these offerings, so long as they meet or exceed code efficiency, or   • A new high efficiency permanent magnet motor compatible with VFDs. This motor must also exceed federal codes. • The installed VFDs must be programmed to vary motor speed based on packaged unit's operational requirements. The motors cannot be set to operate at a single speed. Although not required as part of this measure package, the following recommendations are being provided as best practices for implementation. • Economizer high limit should be optimized for the climate per 2025 Title 24 Table 140.4-G. • Ensure proper setup of the damper limits and fan speeds to provide ventilation in accordance with 2025 Title 24. • Verify the total unit airflow for at least one fan speed and verify the percentage of outdoor air for each unit operating mode. This includes heating and cooling stages, as well as the ventilation-only mode. • Minimum airflows should be set such appropriate heat transfer is possible and damage due to coil freezing is avoided. The VFD (and motor if applicable) must be installed on a packaged or split single-zone DX cooling unit with a gas furnace (cDXGF), cooling only unit (cDXOH), or heat pump (cDXHP). This measure is not eligible for systems that serve process or refrigeration loads.
Quality Assurance: Design, Installation, Commissioning, and Operation
This measure requires field documentation of the existing conditions that verify the measure was necessary and that the measure was successfully applied. Verified the VFD logic is functioning and modifying fan speed as intended.
Important Notes
None

Drive Belt for HVAC Fan, Commercial

https://www.caetrm.com/measure/SWHC024/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC024-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A cogged (or notched) V-belt or timing belt for nonresidential package rooftop HVAC systems.

Measure Equipment Type	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
Cogged V-belt	NC	B	Cogged V-belt for HVAC fans, new construction
Cogged V-belt	NR	A	Cogged V-belt for HVAC fans, normal replacement
Timing belt	NC	D	Timing belt for HVAC fans, new construction
Timing belt	NR	C	Timing belt for HVAC fans, normal replacement

Base Case Description

A smooth fan belt for nonresidential package rooftop HVAC systems.

Measure Equipment Type	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Cogged V-belt	NC	B	HVAC ventilation fan - general purpose motor, smooth V-belt	HVAC ventilation fan - general purpose motor, smooth V-belt
Cogged V-belt	NR	A	HVAC ventilation fan - general purpose motor, smooth V-belt	HVAC ventilation fan - general purpose motor, smooth V-belt
Timing belt	NC	D	HVAC ventilation fan - general purpose motor, smooth V-belt	HVAC ventilation fan - general purpose motor, smooth V-belt
Timing belt	NR	C	HVAC ventilation fan - general purpose motor, smooth V-belt	HVAC ventilation fan - general purpose motor, smooth V-belt

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	54.53	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-0.01	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	12.19	Link
Base Case Costs ($)	5.57	
Incremental Cost ($)	6.61	
Effective Useful Life (years)	4.89	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The belt(s) must be installed on the supply-air and/or return-air fan(s) of belt-driven rooftop/packaged units that do not already have a cogged V-belt or a timing belt. Replacement of broken or non-functioning cogged V-belts or timing belts is eligible as Normal Replacement (NR). For cogged V-belt, only “A” and “B” section belts (the two types typically used in rooftop/packaged units) are eligible for this measure. “L”, “C”, and “D” type cogged V-belts are not eligible. Timing belts must have matching pulleys to be eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
A part/trade number or specifications must be submitted with projects to verify eligibility.
Important Notes
None

Package Terminal Air Conditioner or Heat Pump, Under 24 kBtu/hr

https://www.caetrm.com/measure/SWHC027/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC027-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A through-the-wall, self-contained, and less than 2 tons (≤24 kBtu/hr) packaged terminal air conditioner (PTAC) or packaged terminal heat pump (PTHP) that has an energy efficiency rating (EER) and, for PTHP heating mode, a coefficient of performance (COP) that are 20% higher than the base case.

Base Case Description

A through-the-wall, self-contained, and less than 2 tons (≤24 kBtu/hr) PTAC or PTHP unit that meets 2025 Title 24 minimum efficiency.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial, Res - Residential
Building Type	Com - Commercial, Gst - Lodging - Guest Room, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MFm - Residential Multi-family, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RtS - Retail - Small, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Eff_AC, DEER:HVAC_Eff_HP, DEER:HVAC_Split-Package_AC, DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.06	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	124.16	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,027.33	Link
Base Case Costs ($)	1,771.15	
Incremental Cost ($)	256.18	
Effective Useful Life (years)	15.69	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
PTAC units are eligible only without gas heating. Products with gas heating are not eligible for this measure. PTACs and PTHPs are typically used to condition small areas that have wide swings in occupancy levels. As a result, they are most commonly installed in hotels and motels where individual guest room zone control is necessary. Ductless mini-split AC and HP are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the new unit meets minimum efficiency requirements in the Offering ID table. Verify that the new unit is properly installed and commissioned.
Important Notes
None

Fan Controller for Air Conditioner, Residential

https://www.caetrm.com/measure/SWHC029/04/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2024

VERSION
SWHC029-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A residential central HVAC system with an evaporator fan controller that uses built-in logic or a manually set time delay to delay the evaporator fan cycle off time. The built-in control logic is based on equipment operation and cycling to improve HVAC system efficiency.

Statewide Measure Offering ID	Measure Offering Description
A	Fan controller for residential air conditioners

Base Case Description

A residential central HVAC system with standard fan controls and operation without a manual or logic-based evaporator fan controller

Statewide Measure Offering ID	Existing Description	Standard Description
A	No fan controller for air conditioner	No fan controller for air conditioner

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed
Normalized Unit	Area-ft2-BA - square feet of Building area
Electric Impact Profile ID	DEER:HVAC_Eff_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.38	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	0.08	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Both automated (logic-based) fan controllers and manually set time-delay fan controllers are eligible. For manual fan controllers, the delay timer must be programmed to four minutes in order to maximize savings associated with the fan-delay, in accordance with the results of the SCE ET Study titled *Effects of Delaying Evaporator Fan Cycle Off Time for Residential Air-conditioning Units*. The installation of a manually set time-delay fan controller requires the invoice and/or installation contract that verifies the equipment was installed by an approved California (C-20) HVAC licensed contractor. This measure only applies to a fully functional central residential air conditioning unit equipped with cooling/evaporator (DX) coils. All installations shall comply with all current applicable regulations, code, and standards including (but not limited to) the California Building Energy Efficiency Standards (Title 24), the California Appliance Efficiency Regulations (Title 20), and the National Electrical Code (NEC). The following are not eligible: • A fan controller used for solely optimizing and improving heating efficiency including those for gas furnaces. • The existing air conditioning system equipped with a previously installed add-on retrofit fan-delay controller.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
In the eTRM, measure is only eligible for installation on HVAC systems manufactured prior to 2010. HVAC systems manufactured in 2010 and thereafter are expected to include some level of fan control delay capability as indicated by a high level industry standard practice (ISP) effort supported as part of this measure update.

Furnace, Residential

https://www.caetrm.com/measure/SWHC031/07/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC031-07

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A residential high-efficiency central gas furnace with an electronically commutated motor (ECM) meeting the specified annual fuel utilization efficiency (AFUE) rating.

DEERMeasureID	Statewide Measure Offering ID	Measure Offering Description
Res-GasFurnace-AFUE92-ECM	A	High efficiency furnace, residential, AFUE 92%-ECM
Res-GasFurnace-AFUE95-ECM	B	High efficiency furnace, residential, AFUE 95%-ECM
Res-GasFurnace-AFUE97-ECM	C	High efficiency furnace, residential, AFUE 97%-ECM

Base Case Description

A non-condensing central gas furnace that meets the minimum AFUE of 80% and minimum code fan energy rating (FER) rating for a furnace with input capacity ≤225 kBtu/hr. Since 2019, the U.S. Department of Energy has mandated that new furnace manufacturers use efficient EC motors, making them the standard baseline.

DEERMeasureID	Statewide Measure Offering ID	Existing Description	Standard Description
Res-GasFurnace-AFUE92-ECM	A	Residential furnace, AFUE 80%, PSC supply motor	Residential furnace, AFUE 80%, ECM supply motor
Res-GasFurnace-AFUE95-ECM	B	Residential furnace, AFUE 80%, PSC supply motor	Residential furnace, AFUE 80%, ECM supply motor
Res-GasFurnace-AFUE97-ECM	C	Residential furnace, AFUE 80%, PSC supply motor	Residential furnace, AFUE 80%, ECM supply motor

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:HVAC_Eff_HP
Gas Impact Profile ID	Winter Only

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	3.03	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.25	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	37.66	Link
Base Case Costs ($)	24.71	
Incremental Cost ($)	12.95	
Effective Useful Life (years)	30.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
A list of eligible furnaces can be found at https://www.ahridirectory.org (search for qualifying products that meet or exceed the measure case specification). Used or rebuilt equipment is not eligible. Replacement of an electric heater with a gas heater (fuel substitution) is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the new unit meets minimum efficiency requirements in the Offering ID table. Verify that the new unit is properly installed and commissioned.
Important Notes
None

Brushless Fan Motor Replacement, Residential

https://www.caetrm.com/measure/SWHC038/05/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC038-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A central brushless fan motor (BFM, or DC Motor) specifically configured as a drop-in retrofit for a standard permanent split capacitor (PSC) residential fan (blower) motor serving a central HVAC system.

Statewide Measure Offering ID	Measure Offering Description
A	Central brushless fan motor (BFM or DC motor)

Base Case Description

A permanent split capacitor (PSC) residential fan motor serving a HVAC system meeting 2025 Title 24 fan performance (W/cfm) requirement.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Standard PSC residential fan (blower) motor	Standard PSC residential fan (blower) motor

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Area-ft2-BA - square feet of Building area
Electric Impact Profile ID	DEER:HVAC_Eff_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.37	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	-0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	0.33	Link
Base Case Costs ($)	0.19	
Incremental Cost ($)	0.14	
Effective Useful Life (years)	5.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The square footage served by each HVAC unit shall be confirmed and should fall within the below range of tonnage to square footage. The weighted average can be taken given the total square footage of the home and the provided HVAC unit information to find the approximate square footage served by the unit on where the BFM was installed. • 1 ton: 400 - 600 square feet • 2 ton: 800 - 1,200 square feet • 3 ton: 1,200 - 1,800 square feet • 4 ton: 1,600 - 2,400 square feet • 5 ton: 2,000 - 3,000+ square feet The replacement brushless fan motor and motor controls assembly shall be “UL Listed.” This measure only supports HVAC (evaporator) fan motors with nominal capacities of ½-hp or less. The measure applies to units with shaded pole (SHP) or permanent split capacitor (PSC) motors currently installed. As stated previously, the replacement motor is to be a brushless direct current motor with selectable speed control designed to replace a PSC motor in a residential direct drive fan application.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
For this measure, a brushless fan motor is compared to a PSC motor as if they were both installed on identical systems (duct and furnace) at the same air flow rate and external static pressure.

Smart Thermostat, Residential

https://www.caetrm.com/measure/SWHC039/09/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC039-09

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a residential smart thermostat with two-way communication and automatic scheduling capabilities

Program Type	System Type	Statewide Measure Offering ID	Measure Offering Description
Direct Install Program	Smart Thermostat - AC w/ Central Gas Furnace	C	Residential smart thermostat (direct install)
Direct Install Program	Smart Thermostat - Central Gas Furnace	G	Residential smart thermostat central gas furnace (direct install)
Direct Install Program	Smart Thermostat - Heat Pump	D	Residential smart thermostat heat pump (direct install)
Rebate Program	Smart Thermostat - AC w/ Central Gas Furnace	E	Residential smart thermostat (downstream deemed/upstream deemed)
Rebate Program	Smart Thermostat - Central Gas Furnace	H	Residential smart thermostat central gas furnace (downstream deemed/upstream deemed)
Rebate Program	Smart Thermostat - Heat Pump	F	Residential smart thermostat heat pump (downstream deemed/upstream deemed)

Base Case Description

A setback programmable thermostat per the *Impact Evaluation of Smart Thermostats. Residential Sector - Program Year 2018*.

Program Type	System Type	Statewide Measure Offering ID	Existing Description	Standard Description
Direct Install Program	Smart Thermostat - AC w/ Central Gas Furnace	C	Programmable thermostat	Programmable thermostat
Direct Install Program	Smart Thermostat - Central Gas Furnace	G	Programmable thermostat	Programmable thermostat
Direct Install Program	Smart Thermostat - Heat Pump	D	Programmable thermostat	Programmable thermostat
Rebate Program	Smart Thermostat - AC w/ Central Gas Furnace	E	Programmable thermostat	Programmable thermostat
Rebate Program	Smart Thermostat - Central Gas Furnace	H	Programmable thermostat	Programmable thermostat

Program Type	System Type	Statewide Measure Offering ID	Existing Description	Standard Description
Rebate Program	Smart Thermostat - Heat Pump	F	Programmable thermostat	Programmable thermostat

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Household - dwelling or household
Electric Impact Profile ID	DEER:HVAC_Eff_AC, DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	60.33	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	4.39	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	247.41	Link
Base Case Costs ($)	138.50	
Incremental Cost ($)	108.91	
Effective Useful Life (years)	9.10	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Smart thermostat must be in full compliance with the ENERGY STAR® Program Requirements and Product Specification for Connected Thermostats products Version 1.0. The customer must use the thermostat to control heating and/or cooling equipment. Eligible HVAC system types include: • Central air conditioning with gas forced air furnace • Central heat pump • Central air conditioning with heating systems other than gas furnace. These include, but are not limited to, electric forced air furnaces, hydronic heating, wall or floor gas furnaces, and wall or floor electric furnaces. No savings have been explicitly provided for heating systems other than gas furnaces in Resolution E-5221. Savings for the heat pump offering adopt the cooling savings from the air conditioning with gas furnace measure with no claimed savings for heating. Similarly, when other heating systems are paired with central air conditioning, those should claim the heat pump offering (cooling only) savings. • Central gas furnaces without cooling. These offerings can claim gas savings only. • Primary heating systems other than gas furnaces or heat pumps, such as electric resistance and hydronic heating systems, are excluded if they are not paired with a central DX cooling system. If a common “c-wire” is not available as part of the low-voltage control wiring, it is required that the installation of the measure includes a common wire adapter. While most newer home vintages may include the "c-wire," many of the older home vintages may not. All installations shall fully comply with the manufacturer’s written installation requirements.
Quality Assurance: Design, Installation, Commissioning, and Operation
Ensure that the thermostat is installed in an eligible home and is attached to the type of HVAC equipment that is being incentivized, whether it is for natural gas or electricity savings. Confirm that the customer has a newly purchased smart thermostat and confirm the purchase date is on or after the program start date. *Per Impact Evaluation of Smart Thermostats. Residential Sector - Program Year 2019*, program implementers are recommended to “support Direct Install programs to include or strengthen contractor training and customer education about settings (auto-away) and device use (pre-heating/pre-cooling) that will help save energy.” Confirm that the smart thermostat is connected to Wi-Fi or has internet access upon installation.
Important Notes
None

Software-Controlled Switch Reluctance Motor

https://www.caetrm.com/measure/SWHC041/08/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC041-08

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A software-controlled switch reluctance motor (SRM) in an HVAC packaged unit used in a commercial or industrial building. The normal replacement (NR) MAT is applicable to fan motors between 1 hp to 3 hp (nameplate) and the accelerated replacement (AR) MAT is applicable to fan motors between 1 hp to 15 hp (nameplate). The motor horsepower for NR offerings is capped at 3 hp because above 3 hp SRMs have similar nominal efficiencies as the baseline NEMA Premium efficiency motors. The motor horsepower for AR offerings is capped at the largest commercially available SRM motor capacity found in the market.

Host System Type	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
AC Unit Only	AR	C	Software-controlled SRM in unitary AC system, AR, 1 - 15 hp
AC Unit Only	NR	D	Software-controlled SRM in unitary AC system, NR, 1 - 3 hp
AC Unit with Gas Heat	AR	E	Software-controlled SRM in unitary AC with gas furnace system, AR, 1 - 15 hp
AC Unit with Gas Heat	NR	F	Software-controlled SRM in unitary AC with gas furnace system, NR, 1 - 3 hp
Heat Pump	AR	G	Software-controlled SRM in unitary heat pump system, AR, 1 - 15 hp
Heat Pump	NR	H	Software-controlled SRM in unitary heat pump system, NR, 1 - 3 hp

Base Case Description

The existing base case is a single speed fan induction motor; the motor efficiency is representative of the minimum federal motor efficiency during the installation year of the packaged unit (2011). The standard base case is a federal code efficient supply fan induction motor and VFD controller in a HVAC packaged unit that meets the Title 24 requirement.

Host System Type	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
AC Unit Only	AR	C	Existing efficiency constant speed induction supply fan motor	Code efficiency variable speed induction supply fan motor with VFD
AC Unit Only	NR	D	Code efficiency variable speed induction supply fan motor with VFD	Code efficiency variable speed induction supply fan motor with VFD

Host System Type	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
AC Unit with Gas Heat	AR	E	Existing efficiency constant speed induction supply fan motor	Code efficiency variable speed induction supply fan motor with VFD
AC Unit with Gas Heat	NR	F	Code efficiency variable speed induction supply fan motor with VFD	Code efficiency variable speed induction supply fan motor with VFD
Heat Pump	AR	G	Existing efficiency constant speed induction supply fan motor	Code efficiency variable speed induction supply fan motor with VFD
Heat Pump	NR	H	Code efficiency variable speed induction supply fan motor with VFD	Code efficiency variable speed induction supply fan motor with VFD

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Rated-HP - nameplate HP
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC, DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	2,609.62	Link
Standard - Electric Savings (kWh/yr)	140.72	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,691.39	Link
Base Case Costs ($)	1,140.90	
Incremental Cost ($)	550.49	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	6.67	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The product must be a switch reluctance motor and must be programmed to vary its speed based on packaged unit operational requirements. The motors cannot be set to operate at a single speed. For NR offerings, the project must replace a 1 hp to 3 hp induction supply fan motor in a packaged HVAC system. The measure may replace a variable speed or two-speed fan motor; note that a two-speed motor can claim savings based on a variable speed baseline. For AR offerings: • Host packaged unit equipment must have a single speed fan motor. • Induction fan motor must be 1 hp to 15 hp and be replaced with an SRM that is 1 hp to 15 hp The SRM must be installed in a packaged or split air conditioning system. The existing system must be a packaged or split single zone AC unit with a gas furnace (cDXGF), cooling only unit (cDXOH), or heat pump (cDXHP). The new motor and controls must be tested for the relevant UL safety standards by a Nationally Recognized Testing Laboratory (NRTL), including, but not limited to UL, Intertek, or NSF. The installation of this measure shall meet all applicable regulations, including but not limited to the current California Building Energy Efficiency Standards (Title 24), federal code, and the National Electrical Code® (NEC). The following are ineligible: • Supply fan motors rated <1 hp and >3 hp (nominal) for NR offerings • For AR offering: • Supply fan motors rated <1 hp and >15 hp (nominal).   • Base case fans with variable speed or 2-speed motors. • Other fans, such as the return fan or outdoor air fan of a packaged HVAC unit. • Systems that serve process or refrigeration loads.
Quality Assurance: Design, Installation, Commissioning, and Operation
Commissioning or operating documentation, including, but not limited to, screenshots from control software, sequence of operations, or a controls description from the installer can be provided to support measure requirement.
Important Notes
None

Evaporative Pre-Cooler System and Controls for Packaged HVAC Unit

https://www.caetrm.com/measure/SWHC042/04/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2024

VERSION
SWHC042-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An evaporative pre-cooler installed on the condenser air intake of an existing or new HVAC packaged unit.

MeasAppType	Statewide Measure Offering ID	Measure Offering Description
AOE	A	HVAC package unit evaporative pre-cooler system and controls, add-on equipment
NC	B	HVAC package unit evaporative pre-cooler system and controls, new construction

Base Case Description

An existing or new Title 24 compliant HVAC packaged unit on an existing building without an existing evaporative pre-cooler

MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
AOE	A	Standard efficiency HVAC packaged unit with no pre-cooler	Standard efficiency HVAC packaged unit with no pre-cooler
NC	B	Standard efficiency HVAC packaged unit with no pre-cooler	Standard efficiency HVAC packaged unit with no pre-cooler

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NC - New Construction
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	CZ10 - Riverside, CZ11 - Red Bluff Area, CZ12 - Sacramento Area, CZ13 - Fresno Area, CZ14 - Palmdale, CZ15 - Palm Springs-Intl
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.13	Link
Standard - Peak Demand Reduction (kW)	0.15	
Existing - Electric Savings (kWh/yr)	73.87	Link
Standard - Electric Savings (kWh/yr)	122.26	
Existing - Gas Savings (therm/yr)	-0.00	Link
Standard - Gas Savings (therm/yr)	-0.54	
Existing - Water Savings (gal/yr)	-120.89	Link
Standard - Water Savings (gal/yr)	-120.88	
Measure Case Costs ($)	237.28	Link
Base Case Costs ($)	0.00	
Incremental Cost ($)	237.28	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The HVAC packaged units and the evaporative pre-cooler system and controls must meet the following requirements: • For the add-on equipment (AOE) measure, the existing packaged unit on which the evaporative pre-cooler system will be installed must be less than 10 years old. • A water treatment system must be used in conjunction with the evaporative pre-cooler system to maintain water quality and performance. • Real time monitoring of the evaporative pre-cooler system must be implemented to ensure the system is working properly. • As a standard procedure, the contractor must perform condenser coil cleaning prior to installation of the pre-cooler system. The eligible climate zones are dependent on the building type: • CZ10, CZ11, CZ12, CZ13, CZ14, and CZ15: All commercial buildings excluding Hospital (Hsp), Nursing Home (Nrs), and Refrigerated Warehouse (WRf) • CZ11, CZ13, CZ14, and CZ15: Hospital (Hsp), Nursing Home (Nrs), and Refrigerated Warehouse (WRf)
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Multiple Capacity Unitary Air-Cooled Commercial Air Conditioners Between 65 and 240 kBtu/hr

https://www.caetrm.com/measure/SWHC043/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC043-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A unitary air-cooled AC unit with a multi-speed indoor fan and a compressor with either 1) variable speed compressor(s), 2) multiple-step compressor(s), or 3) multiple compressors operating on a single refrigeration circuit (tandem compressors). The minimum energy efficiency ratio (EER) and integrated energy efficiency ratio (IEER) for each capacity category are specified below.

Capacity Range (kBtu/hr)	Minimum IEER	Minimum EER	Statewide Measure Offering ID	Measure Offering Description
135 - 239	17.5	12	B	135 - 239 kBtu/hr, 12.0 EER and 17.5 IEER multi-capacity air source unitary AC DX equipment
135 - 239	17.5	12.5	D	135 - 239 kBtu/hr, 12.5 EER and 17.5 IEER multi-capacity air source unitary AC DX equipment
65 - 134	19	12	A	65 - 134 kBtu/hr, 12.0 EER and 19.0 IEER multi-capacity air source unitary AC DX equipment
65 - 134	19	13	C	65 - 134 kBtu/hr, 13.0 EER and 19.0 IEER multi-capacity air source unitary AC DX equipment

Base Case Description

A unitary air-cooled AC equipment with an EER/IEER that meets the minimum Title 20, Title 24, and federal code requirements.

Capacity Range (kBtu/hr)	Minimum IEER	Minimum EER	Statewide Measure Offering ID	Existing Description	Standard Description
135 - 239	17.5	12	B	IEER-rated packaged AC, size range: 135 - 239 kBtu/hr, EER = 10.8, IEER = 14.0	IEER-rated packaged AC, size range: 135 - 239 kBtu/hr, EER = 10.8, IEER = 14.0
135 - 239	17.5	12.5	D	IEER-rated packaged AC, size range: 135 - 239 kBtu/hr, EER = 10.8, IEER = 14.0	IEER-rated packaged AC, size range: 135 - 239 kBtu/hr, EER = 10.8, IEER = 14.0

Capacity Range (kBtu/hr)	Minimum IEER	Minimum EER	Statewide Measure Offering ID	Existing Description	Standard Description
65 - 134	19	12	A	IEER-rated packaged AC, size range: 65 - 134 kBtu/hr, EER = 11, IEER = 14.6	IEER-rated packaged AC, size range: 65 - 134 kBtu/hr, EER = 11, IEER = 14.6
65 - 134	19	13	C	IEER-rated packaged AC, size range: 65 - 134 kBtu/hr, EER = 11, IEER = 14.6	IEER-rated packaged AC, size range: 65 - 134 kBtu/hr, EER = 11, IEER = 14.6

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age, New - New Construction, Old - Old, Rec - Recent
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.16	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	140.52	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,533.21	Link
Base Case Costs ($)	1,966.22	
Incremental Cost ($)	566.99	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Products must use refrigerants that are compliant with all applicable federal and state standards (see Code Requirements section). The AC equipment must include advanced compressor capacity control (either a variable speed compressor, tandem compressors on a single refrigeration circuit, or multiple-step compressors). The AC equipment must include a multi-speed (three steps or greater) indoor fan. Unitary heat pumps (HPs) and unitary ACs with electric resistance heating for commercial applications are not eligible. Central chilled water hydronic systems and domestic hot water systems are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Ductless HVAC, Residential, Fuel Substitution

https://www.caetrm.com/measure/SWHC044/05/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC044-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A ductless heat pump (mini or multi-split) with cooling capacity less than 65,000 Btu/hr meeting the specified seasonal energy efficiency ratio (SEER or SEER2) and heating season performance factor (HSPF or HSPF2) requirement.

Base Case Description

A residential HVAC system with a natural gas gravity wall furnace and an electric window air conditioning unit, or a system with only a natural gas gravity wall furnace and no existing cooling unit or load. The base case annual fuel utilization efficiency (AFUE) rating and energy efficiency ratio (EER) meet Title 20 and federal code requirement.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-111.32	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	52.30	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	3,381.20	Link
Base Case Costs ($)	1,193.69	
Incremental Cost ($)	2,187.51	
Effective Useful Life (years)	23.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The installed equipment must meet the requirements for the selected measure offering ID as follows: • The ductless mini-split or multi-split heat pump must meet or exceed the SEER2 and HSPF2 requirements (or SEER and HSPF requirements if applicable) • Note: due to a code update effective January 1, 2023, the previously offered SEER 15 efficiency tier has been retired. The mini-split heat pump must be a model suitable for residential use with an appropriate capacity (not more than 7.5 tons cooling capacity) and the customer's electrical service (typically single phase). The base equipment type must match the description (wall furnace or Window AC and wall furnace). The existing furnace and air conditioning equipment (if applicable) must be removed and disposed of rather than refurbished and sold. Existing gas line(s) serving the base equipment must be capped off and/or removed. The installation of the measure must be performed by all state and local regulations including but not limited to the California Building Standards Code (Title 24, which includes e.g. the California Building Code, California Energy Code, and California Mechanical Code), the Appliance Efficiency Regulations (Title 20), and the National Electrical Code (NEC). Refrigerant must be handled and disposed of in accordance with EPA regulation, 40 CFR Part 82, Subpart F. This measure is not eligible when there is no natural gas to electricity fuel substitution for space heating.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
This is a fuel substitution measure. **SEER2 vs SEER Efficiency Ratings:** The test procedure for EER/SEER/HSPF ratings is defined in Appendix M to 10 CFR 430 Subpart B. In 2022, manufacturers began rolling out new equipment rated and labeled according to a new test procedure defined in Appendix M1, with ratings labeled differently to avoid confusion (i.e., SEER2 or SEERM1). The Appendix M1 ratings are the basis for compliance with new code minimum efficiency requirements that take effect on January 1, 2023. A given piece of equipment may be rated under both test procedures with different test result values, so some equipment may bear ratings with both labels, and the two ratings should not be compared.

Heat Pump HVAC, Residential, Fuel Substitution

https://www.caetrm.com/measure/SWHC045/04/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC045-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An electric residential central air-source heat pump that utilizes auxiliary heat (i.e., electric resistance heating) when additional heating is required. The measure case must meet the specified seasonal energy efficiency ratio (SEER2) and heating season performance factor (HSPF2) requirement.

Base Case Description

The existing case is a residential split air-conditioner with SEER2 = 12.4 & gas furnace with annual fuel utilization efficiency (AFUE) = 78 or thermal efficiency (TE) = 80% (at manufacturer's option). The standard base case is a system that meets all code minimum requirements (i.e., SEER2 = 14.3 or SEER = 15 & gas furnace TE = 80%).

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-450.92	Link
Standard - Electric Savings (kWh/yr)	-464.16	
Existing - Gas Savings (therm/yr)	44.20	Link
Standard - Gas Savings (therm/yr)	43.96	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,898.90	Link
Base Case Costs ($)	1,169.69	
Incremental Cost ($)	1,729.21	
Effective Useful Life (years)	23.00	Link
Remaining Useful Life (years)	8.81	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The existing furnace and air conditioning equipment (if applicable) must be removed and disposed of rather than refurbished and sold. Existing gas line(s) serving removed gas equipment must be capped off and removed refrigerant must be handled and disposed in accordance with all state and local regulations, including but not limited to the California Building Standards Code (Title 24, which includes e.g. the California Building Code, California Energy Code, and California Mechanical Code), the Appliance Efficiency Regulations (Title 20), the National Electrical Code (NEC), and EPA regulations (40 CFR Part 82, Subpart F). Existing equipment incentivized under accelerated replacement (AR) must be fully operational and serving intended application under qualified building type.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
This is a fuel substitution measure. In the eTRM, the “Gas Furnace Only” permutations failed the CPUC Fuel Substitution Test for CZ15 and do not have climate zone-specific values reported. **SEER2 vs SEER Efficiency Ratings:** The test procedure for EER/SEER/HSPF ratings is defined in Appendix M to 10 CFR 430 Subpart B. In 2022, manufacturers began rolling out new equipment rated and labeled according to a new test procedure defined in Appendix M1, with ratings labeled differently to avoid confusion (i.e., SEER2 or SEERM1). The Appendix M1 ratings are the basis for compliance with new code minimum efficiency requirements that took effect on January 1, 2023. A given piece of equipment may be rated under both test procedures with different test result values, so some equipment may bear ratings with both labels, and the two ratings should not be compared.

Packaged Heat Pump Air Conditioner Commercial, Fuel Substitution

https://www.caetrm.com/measure/SWHC046/05/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2025

VERSION
SWHC046-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An all- electric commercial air-source heat pump (HP) using electric resistance heating only if supplemental heating is required. The measure case must meet or exceed the specified seasonal energy efficiency ratio (SEER2) or integrated energy efficiency ratio (IEER) for cooling mode and the coefficient of performance (COP) for heating mode. For ≥65 kBtu/hr offerings, effective in 2018, the IEER-rated requirement for cooling efficiency supersedes the EER-rated requirement.

Base Case Description

The existing base case is a commercial packaged or split-system AC unit with gas heating meeting the code requirements prevailing in 2014. The standard base case is a commercial packaged or split-system air conditioning (AC) unit with electric direct expansion (DX) cooling and gas heating meeting the code requirements effective in 2023.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-8.53	Link
Standard - Electric Savings (kWh/yr)	-73.17	
Existing - Gas Savings (therm/yr)	39.09	Link
Standard - Gas Savings (therm/yr)	41.24	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,867.02	Link
Base Case Costs ($)	1,488.94	
Incremental Cost ($)	378.08	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	6.67	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
This measure involves fuel substitution and must replace an existing less efficient packaged or split AC and natural gas furnace. Measure case and base case equipment must meet the prescribed requirement for the selected offering ID. The existing furnace equipment must be removed and disposed of rather than refurbished and sold. All installation and removal must be in accordance with all state and local regulations including but not limited to the California Building Energy Efficiency Standards (Title 24) and the Appliance Efficiency Regulations (Title 20), the California Building Standards Code, the California Plumbing Code, the National Electrical Code (NEC), EPA regulations. Existing equipment incentivized under accelerated replacement (AR) must be fully operational and serve the intended application under qualified building type. Non-operational and/or broken equipment cannot be incentivized under AR and must be incentivized under normal replacement (NR). For industrial building types, the unitary HP must be used solely for space comfort conditioning, such as serving office spaces within the industrial building.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Gas Fireplace, Residential

https://www.caetrm.com/measure/SWHC047/07/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC047-07

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high efficiency gas fireplace meeting the specified fireplace efficiency (FE) rating. Accelerated replacement (AR) offerings involves changing the continuously operating pilot light (CPL), which constantly burns gas to enable ignition, to an intermittent pilot light (IPL), which only ignites the pilot light when burner ON signal is received.

Measure Efficiency	MeasAppType	Statewide Measure Offering ID	Measure Case Description
Tier 1 (70% FE - 75% FE)	AR	C	70% FE to 75% FE fireplace with IPL replacing a 61% FE fireplace with a CPL
Tier 1 (70% FE - 75% FE)	NC	A	Gas fireplace, tier 1 (70% FE - 75% FE), replacing a 64% FE IPL
Tier 1 (70% FE - 75% FE)	NR	A	Gas fireplace, tier 1 (70% FE - 75% FE), replacing a 64% FE IPL
Tier 2 (75% FE and above)	AR	D	75% FE or greater FE fireplace with IPL replacing a 61% FE fireplace with a CPL
Tier 2 (75% FE and above)	NC	B	Gas fireplace, tier 2 (75% and above), replacing a 64% FE IPL
Tier 2 (75% FE and above)	NR	B	Gas fireplace, tier 2 (75% and above), replacing a 64% FE IPL

Base Case Description

The existing base case is a gas fireplace with a CPL. The standard base case is a gas fireplace with an IPL meeting Title 24 and federal code requirement.

Measure Efficiency	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Tier 1 (70% FE - 75% FE)	AR	C	Gas fireplace with 61% FE CPL	Gas fireplace with 64% FE IPL
Tier 1 (70% FE - 75% FE)	NC	A	Gas fireplace with 64% FE IPL	Gas fireplace with 64% FE IPL
Tier 1 (70% FE - 75% FE)	NR	A	Gas fireplace with 64% FE IPL	Gas fireplace with 64% FE IPL
Tier 2 (75% FE and above)	AR	D	Gas fireplace with 61% FE CPL	Gas fireplace with 64% FE IPL
Tier 2 (75% FE and above)	NC	B	Gas fireplace with 64% FE IPL	Gas fireplace with 64% FE IPL

Measure Efficiency	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Tier 2 (75% FE and above)	NR	B	Gas fireplace with 64% FE IPL	Gas fireplace with 64% FE IPL

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	23.98	Link
Standard - Gas Savings (therm/yr)	7.92	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	4,646.72	Link
Base Case Costs ($)	4,341.06	
Incremental Cost ($)	305.66	
Effective Useful Life (years)	30.00	Link
Remaining Useful Life (years)	10.00	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
This measure applies to gas fireplaces manufactured with burner-control thermostats, integrated IPL controls, and fireplace efficiency (FE) values within the specified ranges. Any technology manufacturer qualifies to be used if safety and all other regulations are met; and the technology is commercially available. Ventless/vent-free fireplaces are not allowed.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
The CPL system can be operated without electricity, and the IPL system requires an electrical supply from either a battery or hardwired into the building electricity supply.

Packaged Air Conditioner Heat Recovery, Commercial

https://www.caetrm.com/measure/SWHC048/04/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2024

VERSION
SWHC048-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A packaged air conditioner with heat recovery capabilities, i.e., that is equipped with an air-to-water heat exchanger that uses the waste heat from the rooftop unit (RTU) to preheat service hot water, thus, reducing hot water heating load.

Statewide Measure Offering ID	Measure Offering Description
A	Heat recovery rooftop unit (HR-RTU) for SHW

Base Case Description

A packaged air conditioner rooftop unit without an air-to-water heat exchanger.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Rooftop AC unit without heat recovery	Rooftop AC unit without heat recovery

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	RFF - Restaurant - Fast-Food
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	564.19	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	17,100.00	Link
Base Case Costs ($)	11,600.00	
Incremental Cost ($)	5,500.00	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Due to this technology being new, there are currently no studies that document the energy savings benefits of preheating water with an air-to-water heat exchanger in a rooftop air conditioning unit (RTU). The emerging technology study, *Portfolio of the Future: Field Testing Report – Rheem H2AC at a Quick-Serve Restaurant*, summarized the results of a field test for which an RTU unit with heat recovery was installed and water temperature and water consumption data was monitored and recorded for 114 days. Therefore, measure is only eligible for a fast food restaurant that is capable of utilizing waste heat to preheat incoming water from the main.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
There are a limited number of units on the market that meet the measure case description, and the product has been discontinued due to it not meeting the federal minimum requirements for IEER efficiency. Manufacturer is working on getting this product updated to meet the minimum requirements by adding a VFD, but there is no timeline yet.

Ducted AC and HP HVAC Equipment, Residential

https://www.caetrm.com/measure/SWHC049/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC049-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An efficient central, single-packaged or split, air conditioner (AC) or heat pump (HP) unit that meets the specified energy efficiency (EER) or seasonal energy efficiency rating (SEER2) for cooling and heating seasonal performance factor (HSPF2) rating for heating.

- **AC**: SEER2 ≥15.2 and EER2 ≥12.2.
- **HP:** SEER2 ≥15.2 and HSPF2 ≥7.7

Base Case Description

The existing base cases are:

- **AC, 18 - 44 kBtu/hr:**
  - 2006 – 2014: SEER = 13 (modeled as EER = 11.08), one-speed fan (equivalent to SEER2 = 12.5 and EER2 = 10.66)
  - 2015 - 2022: SEER = 14 and EER = 12.2, one-speed fan (equivalent to SEER2 = 13.4 and EER2 = 11.78)
- **AC, 45 - 65 kBtu/hr**:
  - 2006 - 2014: SEER = 13 (modeled as EER = 11.08), one-speed fan (equivalent to SEER2 = 12.5 and EER2 = 10.66)
  - 2015 - 2022: SEER = 14 and EER = 11.7, one-speed fan (equivalent to SEER2 = 13.4 and EER2 = 11.2)
- **HP**:
  - 2006 - 2014: SEER = 13 and HSPF = 7.7, one-speed fan (equivalent to SEER2 = 12.5 and HSPF2 = 6.4)
  - 2015 - 2022: SEER = 14 and HSPF = 8.2, one-speed fan (equivalent to SEER2 = 13.4 and HSPF2 = 6.9)

The standard base cases meet all code minimum efficiency requirements effective 1/1/2023 as well as the U.S. Environmental Protection Agency (EPA) refrigerant requirements effective 1/1/2025.

- **AC, 18 - 44 kBtu/hr**: SEER2 = 14.3 and EER2 = 11.7 (9.8 if installed SEER2 ≥15.2).
- **AC, 45 - 65 kBtu/hr:** SEER2 ≥13.8 and EER2 ≥11.2 (9.8 if installed SEER2 ≥15.2).
- **HP:** SEER2-Rated HP with SEER2 ≥14.3 and HSPF2 ≥7.5.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Eff_AC, DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual, SummerOnly

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.17	Link
Standard - Peak Demand Reduction (kW)	0.12	
Existing - Electric Savings (kWh/yr)	296.23	Link
Standard - Electric Savings (kWh/yr)	215.74	
Existing - Gas Savings (therm/yr)	-0.48	Link
Standard - Gas Savings (therm/yr)	-0.37	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,099.52	Link
Base Case Costs ($)	1,631.04	
Incremental Cost ($)	468.47	
Effective Useful Life (years)	23.00	Link
Remaining Useful Life (years)	7.67	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Central air conditioners and central air conditioning heat pumps manufactured on or after January 1, 2023, must have a SEER2 and a HSPF2 rating. Only equipment covered by the Air-conditioning Heating and Refrigeration Institute (AHRI) 210/240 2008 are eligible. The replacement equipment must be “like for like” (e.g., an HP for an HP). Replacing an AC unit and gas furnace with an HP is considered fuel substitution and is not eligible. Refer to SWHC045 and SWHC044 for related residential HVAC fuel substitution measures.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify the measure application type (MAT) and the appropriate baseline application. If MAT is accelerated replacement, document the existing base case. Verify that new unit meets the minimum efficiency requirements in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
Although the measure case offerings include distinct labels for SEER-rated and SEER2-rated equipment, these are not different types of equipment. Hence the base case does not vary depending on whether measure case equipment is SEER-rated or SEER2-rated. Because the supply of SEER-rated units is limited to existing stock manufactured before 2023, the code minimum requirements pertaining to these units are not a reasonable basis to define a baseline. Instead, for all measure offerings the base case reflects code minimum requirements effective for equipment manufactured in 2023, using SEER2 ratings. The code requirements for split and packaged units may differ. For this measure package, both types of units are lumped together and the more stringent requirement is used to define the base case for the purpose of cost and energy savings calculations. The Energy Standard or ISP baseline can be gas-fired. However, measure’s energy savings and cost evaluation and reporting will be based on the difference between the electric Energy Standard baseline and electric measure case (including AC and HP equipment).

Ductless Heat Pump, Residential

https://www.caetrm.com/measure/SWHC050/06/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC050-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A ductless, mini or multi-split, heat pump (HP) with cooling capacity less than 65,000 Btu/hr and meeting the specified energy efficiency (EER) or seasonal energy efficiency rating (SEER2) for cooling and heating seasonal performance factor (HSPF2) rating for heating.

Base Case Description

The existing base case is a room/window or ductless, HP or air-conditioning (AC) with electric resistance space heater unit meeting Title 20 requirements prevailing in 2013. The standard base case is a unit meeting the Title 20 code requirement effective in 2023.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.11	Link
Standard - Peak Demand Reduction (kW)	0.07	
Existing - Electric Savings (kWh/yr)	270.56	Link
Standard - Electric Savings (kWh/yr)	177.73	
Existing - Gas Savings (therm/yr)	-0.02	Link
Standard - Gas Savings (therm/yr)	-0.01	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	3,543.19	Link
Base Case Costs ($)	1,604.41	
Incremental Cost ($)	1,938.77	
Effective Useful Life (years)	23.00	Link
Remaining Useful Life (years)	7.67	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The California Building Energy Efficiency Standards (Title 24) restricts electric resistance space heaters for primary heating. Hence, the standard equipment that would be installed to replace an existing room AC (or ductless AC coupled with electric resistance space heater) is deemed to be room HP (or Ductless HP, respectively). Hence, HSPF applies for heating mode efficiency to all standard base cases. The replacement equipment must be “like for like” (e.g., a ductless HP for a ductless HP). Only equipment covered by the Air-conditioning Heating and Refrigeration Institute (AHRI) 210/240 and 1230 and Department of Energy Code (DOE) Code of Federal Regulations (CFR) 429.16 are eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify the measure application type (MAT) and the appropriate baseline application. If MAT is accelerated replacement, document the existing base case Verify that new unit meets the minimum efficiency requirements. Verify that new unit is properly installed and commissioned.
Important Notes
For room ACs and electric resistance space heaters and for room HPs, code only specifies EER. Here, a standard practice HSPF was defined from typically seen HSPF-to-EER ratios corresponding to the capacity and EER range of SEER-rated ductless HPs.

Heat Recovery Ventilation, Residential

https://www.caetrm.com/measure/SWHC054/03/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC054-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of an energy efficient – rated by apparent sensible effectiveness (ASEF), sensible recovery efficiency (SRE), and W/cfm – heat recovery ventilator (HRV), with a sensible efficiency (SRE), to the forced-air heating and ventilating air-conditioning system. Tier 1 denotes high-efficiency HRV; Tier 2 denotes best-in-class HRV, which may require additional modifications to the standard system configuration by improving recovery effectiveness and fan efficiency in having an integrated cross-counter flow heat exchanger and an automatic summer cooling bypass function (economizer) and adding efficient supply and exhaust ECM fan motors.

Tier	BldgType	Statewide Measure Offering ID	Measure Offering Description
Tier 1	MFm	A	Heat recovery ventilator with 60% SRE and 65% ASRE, or above, and 0.70 W/cfm
Tier 1	SFm	B	Heat recovery ventilator with 60% SRE and 65% ASRE, or above, and 0.70 W/cfm
Tier 2	MFm	C	Heat recovery ventilator with 86% SRE and 90% ASRE, or above, and 0.47 W/cfm
Tier 2	SFm	D	Heat recovery ventilator with 86% SRE and 90% ASRE, or above, and 0.56 W/cfm

Base Case Description

A standard efficiency heat recovery ventilation system for multifamily buildings and a standard exhaust fan for single family buildings.

Tier	Base Case Ventilation Type	BldgType	Statewide Measure Offering ID	Existing Description	Standard Description
Tier 1	Balanced Ventilation	MFm	A	Balanced ventilation system	Balanced ventilation system
Tier 1	Standard Exhaust Fan	SFm	B	Standard exhaust fan ventilation	Standard exhaust fan ventilation
Tier 2	Balanced Ventilation	MFm	C	Balanced ventilation system	Balanced ventilation system
Tier 2	Heat Recovery Ventilation	MFm	C	Standard efficiency heat recovery ventilation	Standard efficiency heat recovery ventilation
Tier 2	Standard Exhaust Fan	SFm	D	Standard exhaust fan ventilation	Standard exhaust fan ventilation

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction
Sector	Res - Residential
Building Type	MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	New - New Construction
Building Location	All climate zones
Delivery Type	Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Household - dwelling or household
Electric Impact Profile ID	DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	226.81	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,993.62	Link
Base Case Costs ($)	823.04	
Incremental Cost ($)	2,170.59	
Effective Useful Life (years)	14.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
This measure requires the installation of an air-to-air heat recovery ventilator (HRV) unit that draws in fresh outside air, while stale, humid, air is exhausted. The following installations are not eligible: **Single Family**: Tier 1 HRV are not eligible in rDXHP systems except in CZ01, CZ02 and CZ16 as the additional fan energy outweighs the increased heating and cooling efficiency savings. **Multifamily**: • Tier 1 HRV are not eligible in CZ01, CZ02, CZ04, CZ11 through CZ14, and CZ16 due to prescriptive Title 24 Prescriptive Code ventilation requirements. • Tier 1 HRV are not eligible in rDXHP systems in CZ08, CZ09, and CZ10 as the additional fan energy outweighs the increased heating and cooling efficiency savings.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
A single-phase air-source electric heat pump for space heating and space cooling HVAC systems were used for this measure.

Space Heating Gas Absorption Heat Pump, Multifamily

https://www.caetrm.com/measure/SWHC057/02/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC057-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A gas absorption heat pump (GAHP) water heater system, sized to satisfy the peak load of the space heating system and improve the efficiency of the conventional gas-fired boiler system, with coefficients of performance (COP) ≥1.25 at standard conditions (i.e., 70°F outdoor air and 130°F outlet temperature).

Statewide Measure Offering ID	Measure Offering Description
A	Gas absorption heat pump added to space heating system (COP >= 1.25)

Base Case Description

A centralized natural gas hot water boiler meeting the 2022 Title 24 standards.

Statewide Measure Offering ID	Existing Description	Standard Description
A	Hot water boiler (300 - 2500 kBtu/hr, 84.0% TE)	Hot water boiler (300 - 2500 kBtu/hr, 84.0% TE)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	MFm - Residential Multi-family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-26.98	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	5.06	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	153.81	Link
Base Case Costs ($)	21.08	
Incremental Cost ($)	132.73	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Systems must conform to manufacturers' specifications and with all applicable mechanical, plumbing and building codes and standards. Rebuilt, refurbished, or relocated equipment is not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Patio Heater, Gas, Commercial and Residential

https://www.caetrm.com/measure/SWHC058/02/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC058-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An energy efficient patio heater with a heating index (i.e., effective heated area) higher than the threshold of 2.2 ft2/kBtu/hr.

Measure Case Equipment	Statewide Measure Offering ID	Measure Offering Description
Horizontal (Wall Mount) Patio Heater	B	Efficient infrared horizontal (wall mount) patio heater, gas
Vertical (Standalone) Patio Heater	A	Efficient infrared vertical (standalone) patio heater, gas

Base Case Description

A patio heater that has a heating index less than the threshold of 2.2 ft2/kBtu/hr.

Measure Case Equipment	Statewide Measure Offering ID	Existing Description	Standard Description
Horizontal (Wall Mount) Patio Heater	B	Baseline horizontal patio heater, gas	Baseline horizontal patio heater, gas
Vertical (Standalone) Patio Heater	A	Baseline vertical patio heater, gas	Baseline vertical patio heater, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Res - Residential
Building Type	Com - Commercial, MFmCmn - Residential Multi-family Common Area, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones, Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	186.08	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,909.50	Link
Base Case Costs ($)	1,508.22	
Incremental Cost ($)	1,401.28	
Effective Useful Life (years)	7.50	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
All patio heaters must be tested by an ISO 17025-accredited laboratory using American Society for Testing and Materials (ASTM) F2644-07.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Smart Fan Controller, Residential

https://www.caetrm.com/measure/SWHC059/05/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
1/1/2026

VERSION
SWHC059-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a smart fan controller (SFC) to operate the HVAC fan for extended variable fan-off delays on systems with or without a smart communicating thermostat (SCT).

Measure Case Equipment	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
SFC	AOE	A	Smart fan controller (SFC), AOE
SFC with SCT	AOE	C	Smart fan controller (SFC) with smart communicating thermostat (SCT), AOE

Base Case Description

A residential central package or split HVAC system with or without a SCT.

Measure Case Equipment	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
SFC	AOE	A	No smart fan controller (SFC)	No smart fan controller (SFC)
SFC with SCT	AOE	C	No smart fan controller (SFC) with smart communicating thermostat (SCT)	No smart fan controller (SFC) with smart communicating thermostat (SCT)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Area-ft2-BA - square feet of Building area
Electric Impact Profile ID	DEER:HVAC_Eff_AC, DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.25	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.01	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	0.15	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	9.22	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The base case may also include an HVAC system with a previously installed non-smart "legacy" fan controller that only monitors the fan "G" signal and provides fan-off delays after every fan-on duration which will increase energy use and interfere with smart thermostat savings. To avoid double-counting savings when replacing a "legacy" fan controller, the SFC measure will only be installed to replace a "legacy" fan controller with installation date earlier than 5 years prior to installing the SFC (e.g., for 2024 the installation date would be 2019, etc.). The manufacturing date on the UL label will be collected to identify when the "legacy" fan controller was installed. Eligible products must work with smart thermostats and monitor all thermostat signals including: a cooling AC "Y" signal, a heat "W" signal, and a fan "G" signal. Eligible products must not provide a fan-off delay after fan-only durations to avoid increasing fan-only energy use. Research studies indicate 9 to 31% of users select continuous or hourly fan-on controls increasing electricity use by 1054 to 3520 kWh/yr. All installations shall comply with all current applicable regulations, code, and standards including (but not limited to) the California Building Energy Efficiency Standards (Title 24), the California Appliance Efficiency Regulations (Title 20), and the National Electrical Code (NEC).
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Solar Attic Fan, Residential

https://www.caetrm.com/measure/SWHC061/01/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
5/1/2023

VERSION
SWHC061-01

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a fully solar powered attic fan. The offerings vary based on whether the home has an existing attic fan and/or air conditioning (AC) system.

Base Case Equipment	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
Existing Attic Fan with AC	NR	A	Solar attic fan in home with AC, NR
Existing Attic Fan with No AC	NR	B	Solar attic fan in home with no AC, NR
No Existing Attic Fan with AC	AOE	C	Solar attic fan in home with AC, AOE

Base Case Description

The base case systems are differentiated by the existence of either an electrically powered attic fan, meeting federal code requirement, and/or air conditioning system. Offerings that replace an existing powered attic fan use the normal replacement (NR) measure application type, while those that add a solar attic fan where no attic fan existed use the add-on equipment (AOE) measure application type.

Base Case Equipment	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Existing Attic Fan with AC	NR	A	Existing attic fan in home with AC	Existing attic fan in home with AC
Existing Attic Fan with No AC	NR	B	Existing attic fan in home with no AC	Existing attic fan in home with no AC
No Existing Attic Fan with AC	AOE	C	No existing attic fan in home with AC	No existing attic fan in home with AC

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Household - dwelling or household
Electric Impact Profile ID	DEER:HVAC_Duct_Sealing
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.06	Link
Standard - Peak Demand Reduction (kW)	0.06	
Existing - Electric Savings (kWh/yr)	86.18	Link
Standard - Electric Savings (kWh/yr)	141.94	
Existing - Gas Savings (therm/yr)	-0.30	Link
Standard - Gas Savings (therm/yr)	-0.00	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	618.59	Link
Base Case Costs ($)	415.63	
Incremental Cost ($)	202.96	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	20.00	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
The following eligibility requirements apply: • The solar attic fan must be UL certified for relevant UL safety standards by a Nationally Recognized Testing Laboratory (NRTL). • The solar attic fan must be permanently installed (connected to the roofing/framing of the house) • Any type of permanently installed solar attic fan is eligible, including but not limited to, through-the-roof, gable, or curb mounted solar attic fans. • The solar attic fan must come as single product, not assembled from parts from separate manufacturers. Systems where the solar panel is installed remote from the fan system, such as is common for gable fans, are eligible as long as the fan and solar panel are designed to operate together by the manufacturer. • The solar attic fan (or the solar panel powering the fan for remote solar models) must be installed in largely unshaded areas. • Only one solar attic fan can be installed per home, dwelling unit, or tenant space with an attic. • In order to ensure proper ventilation airflow in the attic, it is recommended that the installer confirm that attic vent sizes and locations are appropriate for attic fan installation.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that the fan's solar panel is optimally positioned to maximize its power output.
Important Notes
This is a POU-only measure; this measure package has not been reviewed and approved by the California Public Utilities Commission (CPUC) but has been affirmed by the California Technical Forum.

Occupancy Fan Controller, Commercial

https://www.caetrm.com/measure/SWHC062/01/

USE CATEGORY
HC - HVAC

EFFECTIVE START DATE
9/16/2024

VERSION
SWHC062-01

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of an occupancy fan control (OFC) to detect when a conditioned space is unoccupied, detect continuous fan operation (ON condition), and set the fan operation from ON to AUTO where the fan is only operated when space conditions call for cooling or heating.

System Type	Statewide Measure Offering ID	Measure Offering Description
AC Only Unit	A	OFC, AC only unit
AC Unit with Gas Heat	B	OFC, AC unit with gas heat
Heat Pump	C	OFC, heat pump
Variable Volume AC Unit with Gas Heat	D	OFC, variable volume AC unit with gas heat

Base Case Description

A HVAC equipment with supply fan operating continuously during unoccupied periods.

System Type	Statewide Measure Offering ID	Existing Description	Standard Description
AC Only Unit	A	Supply fan operating continuously during unoccupied periods, AC only unit	Unoccupied fan control, AC only unit
AC Unit with Gas Heat	B	Supply fan operating continuously during unoccupied periods, AC unit with gas heat	Unoccupied fan control, AC unit with gas heat
Heat Pump	C	Supply fan operating continuously during unoccupied periods, heat pump	Unoccupied fan control, heat pump
Variable Volume AC Unit with Gas Heat	D	Supply fan operating continuously during unoccupied periods, variable volume AC unit with gas heat	Unoccupied fan control, variable volume AC unit with gas heat

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Ind - Industrial, Res - Residential
Building Type	Asm - Assembly, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MFmCmn - Residential Multi-family Common Area, MLI - Manufacturing Light Industrial, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Eff_AC, DEER:HVAC_Split-Package_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.36	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	657.49	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	7.86	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	200.00	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	8.00	

Streamlined Permutations: SWHC_Summary.xlsx

Others:

Program Exclusions
Eligible OFC products receive wired or wireless signals from occupancy sensors in a building. Occupancy sensors may use one or more sensing technologies. 1) Passive infrared (PIR) technology detects occupancy by sensing the change in the surrounding thermal radiation based on occupancy. 2) Ultrasonic sensors emit high-frequency sound waves outside human hearing range and use the doppler effect of returning sound waves to detect occupancy. 3) Time of flight infrared sensors emit invisible infrared light and onboard software detects occupancy. 4) Camera-based occupancy sensors use image processing to activate and record detected occupancy. 5) Geofencing uses location based sensor (LBS) technology such as mobile phones, GPS, or radio frequency identification (RFID) to create a virtual boundary around a physical location to detect occupancy. Advanced occupancy sensors count people and provide accurate data for occupancy levels and space use. When operating in AUTO mode, eligible OFC products also provide a variable fan-off delay at the end of each cooling or heating cycle to over satisfy the thermostat, lengthen off cycle times, and save energy. The OFC works with any sensor technology that can provide a 24VAC/VDC signal. The OFC and occupancy sensor manufacturers provide instructions for sensor placement, operation, adaptive functions, calibration, and settings. The occupancy sensors detect when a conditioned space building is unoccupied, detect continuous fan operation (ON condition), and set the fan operation from ON to AUTO where the fan is only operated when zone conditions call for cooling or heating. The OFC returns fan operation to continuous during occupied periods per building occupancy for minimum outdoor airflow per ASHRAE 62.1. Geofencing must be calibrated, and occupancy sensors must be placed to capture occupancy for each HVAC unit. Geofencing will be calibrated with a WIFI-enabled device placed in conditioned space and verified by installer. Occupancy sensors are verified by changing delayed off time selection to 30 seconds and verifying fan switches from ON to AUTO, and then setting to 20 minutes. Systems serving process loads are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
The following building types are excluded in the analysis and do not have savings reported, due to modeled HVAC types not currently included in the modeled building prototypes: • Offering C heat pump (cDXHP) excludes refrigerated warehouse (WRf). • Offering D Variable Volume AC Unit with Gas Heat (cPVVG) excludes assembly (Asm), primary school (EPr), relocatable classroom (ERC), grocery (Gro), light industrial manufacturing (MLI), fast-food restaurant (RFF), sit-down restaurant (RSD), big box retail (RtL), small retail (RtS), conditioned storage (SCn), and refrigerated warehouse (WRf).

LED, Indoor Horticulture

https://www.caetrm.com/measure/SWLG019/01/

USE CATEGORY
LG - Lighting

EFFECTIVE START DATE
8/30/2024

VERSION
SWLG019-01

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high efficiency LED light fixtures specifically designed for non-stacked separation, stack separation, or greenhouse indoor agriculture.

Application	Crop Type	Crop Growth Stage	Statewide Measure Offering ID	Measure Offerings Description
Greenhouse	Cannabis	Flowering	A	Efficient LED efficacy, 2024, greenhouse, cannabis, flowering, >=2.86 PPE
Greenhouse	Cannabis	Propagation/Vegetative	B	Efficient LED efficacy, 2024, greenhouse, cannabis, propagation/vegetative, >=2.86 PPE
Greenhouse	Non-cannabis	Flowering	C	Efficient LED efficacy, 2024, greenhouse, non-cannabis, flowering, >=2.86 PPE
Greenhouse	Non-cannabis	Propagation/Vegetative	D	Efficient LED efficacy, 2024, greenhouse, non-cannabis, propagation/vegetative, >=2.86 PPE
Non-stacked	Cannabis	Flowering	E	Efficient LED efficacy, 2024, non-stacked, cannabis, flowering, >=2.86 PPE
Non-stacked	Cannabis	Propagation/Vegetative	F	Efficient LED efficacy, 2024, non-stacked, cannabis, propagation/vegetative, >=2.86 PPE
Non-stacked	Non-cannabis	Flowering	G	Efficient LED efficacy, 2024, non-stacked, non-cannabis, flowering, >=2.86 PPE
Non-stacked	Non-cannabis	Propagation/Vegetative	H	Efficient LED efficacy, 2024, non-stacked, non-cannabis, propagation/vegetative, >=2.86 PPE
Stacked	Cannabis	Flowering	I	Efficient LED efficacy, 2024, stacked, cannabis, flowering, >=2.86 PPE

Application	Crop Type	Crop Growth Stage	Statewide Measure Offering ID	Measure Offerings Description
Stacked	Cannabis	Propagation/Vegetative	J	Efficient LED efficacy, 2024, stacked, cannabis, propagation/vegetative, >=2.86 PPE
Stacked	Non-cannabis	Flowering	K	Efficient LED efficacy, 2024, stacked, non-cannabis, flowering, >=2.86 PPE
Stacked	Non-cannabis	Propagation/Vegetative	L	Efficient LED efficacy, 2024, stacked, non-cannabis, propagation/vegetative, >=2.86 PPE

Base Case Description

Standard LED for controlled environment non-stacked, stacked, and greenhouse.

Application	Crop Type	Crop Growth Stage	Statewide Measure Offering ID	Standard Description
Greenhouse	Cannabis	Flowering	A	Standard LED efficacy, greenhouse, cannabis, flowering, >=2.42 PPE
Greenhouse	Cannabis	Propagation/Vegetative	B	Standard LED efficacy, greenhouse, cannabis, propagation/vegetative, >=2.42 PPE
Greenhouse	Non-cannabis	Flowering	C	Standard LED efficacy, greenhouse, non-cannabis, flowering, >=1.7 PPE
Greenhouse	Non-cannabis	Propagation/Vegetative	D	Standard LED efficacy, greenhouse, non-cannabis, propagation/vegetative, >=1.7 PPE
Non-stacked	Cannabis	Flowering	E	Standard LED efficacy, non-stacked, cannabis, flowering, >=2.44 PPE
Non-stacked	Cannabis	Propagation/Vegetative	F	Standard LED efficacy, non-stacked, cannabis, propagation/vegetative, >=2.44 PPE
Non-stacked	Non-cannabis	Flowering	G	Standard LED efficacy, non-stacked, non-cannabis, flowering, >=1.9 PPE
Non-stacked	Non-cannabis	Propagation/Vegetative	H	Standard LED efficacy, non-stacked, non-cannabis, propagation/vegetative, >=1.9 PPE
Stacked	Cannabis	Flowering	I	Standard LED efficacy, stacked, cannabis, flowering, >=2.52 PPE
Stacked	Cannabis	Propagation/Vegetative	J	Standard LED efficacy, stacked, cannabis, propagation/vegetative, >=2.52 PPE
Stacked	Non-cannabis	Flowering	K	Standard LED efficacy, stacked, non-cannabis, flowering, >=1.9 PPE
Stacked	Non-cannabis	Propagation/Vegetative	L	Standard LED efficacy, stacked, non-cannabis, propagation/vegetative, >=1.9 PPE

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural
Building Type	AgOth - Other Agricultural, GHs - Greenhouse
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Fixture - lighting or plumbing fixture
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.10	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	1,558.83	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,090.09	Link
Base Case Costs ($)	1,010.17	
Incremental Cost ($)	79.92	
Effective Useful Life (years)	6.85	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWLG_Summary.xlsx

Others:

Program Exclusions
The fixtures must meet the specification in the Offering ID table. As the standard practice baseline for NR measures is LED, NR measures may replace any existing non-LED or LED fixture. The following are ineligible: • Light engines / retrofit kits. • Non-LED fixture sources. • Dynamically configurable AC products. • LED A lamps used for photoperiodic lighting during vegetative growth period.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
The eTRM savings analysis is based on the following assumptions: • The measure case meets the 2024 photosynthetic photon efficacy (PPE) and efficacy set forth by the California Public Utilities Commission (CPUC) *2023 Cannabis Lighting Industry Standard Practice*. • The measure case qualified by the Designed Lighting Consortium (DLC) Horticultural Technical Requirements (HTR) V3.0. • The base case lighting type and characteristics for cannabis indoor horticulture lighting were based on the "CPUC Staff Response to the Cannabis Lighting Standard Practice Studies Performed by Willdan and TRC" memo. • The lighting type and characteristics for non-cannabis indoor horticulture lighting referenced 2022 Title 24 code requirements.

UL Type B LED Mogul Base Lamp HID Retrofits for Outdoor Area/Pole and Decorative Fixtures

https://www.caetrm.com/measure/SWLG020/03/

USE CATEGORY
LG - Lighting

EFFECTIVE START DATE
1/1/2026

VERSION
SWLG020-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high efficiency UL Type B mogul base screw-in LED lamp that meets or exceeds the minimum lamp efficacy of 130 lumens per watt (LPW) replacing an existing high intensity discharge (HID) – high pressure sodium (HPS) or pulse start metal halide (PSMH) – lamps and ballasts in exterior pole/area and decorative fixtures.

Base Case Description

The existing base case is an outdoor area or decorative fixtures with either existing HPS or PSMH lamps and ballasts, representing the most common types of non-LED mogul base lamps in the market.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial, Res - Residential
Building Type	Any - All Subsectors, MFmCmn - Residential Multi-family Common Area
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Lamp - per lamp
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.03	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	568.61	Link
Standard - Electric Savings (kWh/yr)	70.78	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	228.76	Link
Base Case Costs ($)	214.10	
Incremental Cost ($)	14.66	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWLG_Summary.xlsx

Others:

Program Exclusions
Existing lighting equipment must operate from dusk to dawn using a timeclock, astronomical timeclock, photocell, or equivalent controls. **Host fixture housing types that differ from the LED lamp's DLC category fixture types are eligible if:** It is a fixture in an outdoor ambient lighting application. The host fixture conforms to the LED lamp's manufacturer requirements and UL certified installation instructions. **Requirement for AR:** PSMH is the most efficient lamp technology in the metal halide family, but other less efficient lamps may exist in the market and are eligible under the PSMH baseline. Measure case W not exactly matching the baseline W are eligible as long as claimed savings are conservative, and measure case W falls within the claimed offering's wattage bins. Claims should use the offering with the next lowest baseline watt bin of the same lamp type. For example, the replacement of 50W non-PSMH lamps should use the 39W PSMH baseline. **Since the standard practice baseline for NR is a screw-in LED, NR measures may replace any existing non-LED or LED mogul based screw-in lamps.** Qualified products must meet the following requirements: Must be for Outdoor Pole/Arm-mounted Area and Roadway Luminaires (Type B) or Decorative Luminaires (Type B). Must be mapped to the appropriate wattage bin for each measure and meet or exceed the minimum efficacy requirement. Adjustable output lamps are eligible with the following additional requirements: • The lamp must meet minimum efficacy requirements at the light output level used to claim the incentive. • AR must select the appropriate base case W. If the base case has multiple output settings, any applicable output can be used based on the customer's lighting requirements. • NR must use the lowest W setting of the lamp, aligning it with the lowest applicable measure offering output bin, to ensure conservative claimed savings. Must meeting safety related requirements: rated for fully enclosed fixtures, suitable for damp or wet locations, or have ≥4 ingress protection (IP) water ingress rating. **The following are ineligible:** Residential single-family, multifamily, and mobile home building types. “Abandon-in-place” demolition of existing ballasts. The replacement of integrated LED fixtures or LED retrofit kits. The replacement of LED lamps, induction, compact fluorescent, mercury vapor, low pressure sodium, and incandescent lamps under the AR. However, these replacements are eligible under the NR if operating in appropriate fixtures with mogul bases. Event lighting that operates less than dusk to dawn or using a motion sensor. LED lamps in the DLC “Very High Output” general application category.

Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
The eTRM savings analysis is based on the following assumptions: • The measure case minimum efficacy exceeds the 75th percentile of Design Lights Consortium (DLC) qualified products and is in alignment with standard practice efficacies from SCE's 2024 industry standard practice (ISP) study. • Measure case wattages represent the eligible LED lamp wattages that meet equivalent light output for the existing case HID fixture. • The LED lamp must use a mogul base (E39, EX39, or E40) as required by DLC. • The standard base case is a UL Type-B mogul base screw-in LED lamp with an efficacy between 108 to 114 LPW, representing the 25th percentile of DLC products in the eligible product categories and aligning with the standard practice efficacies from SCE's 2024 ISP study.

High-Efficiency Toilets, Residential and Commercial

https://www.caetrm.com/measure/SWMI003/02/

USE CATEGORY
MI - Miscellaneous

EFFECTIVE START DATE
1/1/2026

VERSION
SWMI003-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high-efficiency toilet that uses less than or equal to 0.8 gallons per flush.

Toilet Type	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
Toilet with flapper valve	AR	A	High-efficiency toilet, with flapper valve, <= 0.8 gallons per flush, AR
Toilet with flapper valve	NC	C	High-efficiency toilet, with flapper valve, <= 0.8 gallons per flush, NC/NR
Toilet with flapper valve	NR	C	High-efficiency toilet, with flapper valve, <= 0.8 gallons per flush, NC/NR
Toilet without flapper valve	AR	B	High-efficiency toilet, without flapper valve, <= 0.8 gallons per flush, AR
Toilet without flapper valve	NC	D	High-efficiency toilet, without flapper valve, <= 0.8 gallons per flush, NC/NR
Toilet without flapper valve	NR	D	High-efficiency toilet, without flapper valve, <= 0.8 gallons per flush, NC/NR

Base Case Description

The existing base case is a low-efficiency toilet that uses 1.6 gallons per flush and the standard base case is a toilet that uses 1.28 gallons per flush.

Toilet Type	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Toilet with flapper valve	AR	A	Standard toilet, 1.6 gallons per flush	Standard toilet, <=1.28 gallons per flush
Toilet with flapper valve	NC	C		Standard toilet, <=1.28 gallons per flush
Toilet with flapper valve	NR	C		Standard toilet, <=1.28 gallons per flush
Toilet without flapper valve	AR	B	Standard toilet, 1.6 gallons per flush	Standard toilet, <=1.28 gallons per flush

Toilet Type	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Toilet without flapper valve	NC	D		Standard toilet, <=1.28 gallons per flush
Toilet without flapper valve	NR	D		Standard toilet, <=1.28 gallons per flush

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Res - Residential
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	2,294.00	Link
Standard - Water Savings (gal/yr)	1,376.00	
Measure Case Costs ($)	26.96	Link
Base Case Costs ($)	21.75	
Incremental Cost ($)	5.20	
Effective Useful Life (years)	16.67	Link
Remaining Useful Life (years)	5.56	

Streamlined Permutations: SWMI_Summary.xlsx

Others:

Program Exclusions
None
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
Rider measures are measures that capture incremental embedded energy savings based on measures already quantified and approved through existing measures and/or Metropolitan Water District's (MWD) water savings list. This measure is a type of rider measure and will adhere to the implementation, installation and program restriction requirements as identified in those approved already measures or MWD program requirements.

Ventilation Fan, Agricultural

https://www.caetrm.com/measure/SWPR001/03/

USE CATEGORY
PR - Process

EFFECTIVE START DATE
1/1/2026

VERSION
SWPR001-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high-efficiency agricultural ventilation fan meeting the minimum efficiency, in term of airflow per watt (cfm/W), for the fan size range:

- 24 in - 26 in: 13.18 cfm/W
- 36 in: 16.62 cfm/W
- 48 in: 19.27 cfm/W
- 50 in - 62 in: 20.75 cfm/W
- 72 in: 22.03 cfm/W
- 84 in: 23.78 cfm/W

Size (inch)	Statewide Measure Offering ID	Measure Offering Description
24 - 26	A	Efficient, Ag ventilation fan, 24 - 26 inch
36	B	Efficient, Ag ventilation fan, 36 inch
48	C	Efficient, Ag ventilation fan, 48 inch
50 - 62	D	Efficient, Ag ventilation fan, 50 - 62 inch
72	E	Efficient, Ag ventilation fan, 72 inch
84	F	Efficient, Ag ventilation fan, 84 inch

Base Case Description

A standard efficiency ventilation fan. The baseline fan efficiency was determined by calculating the 25th percentile of efficiencies for each fan size in the BESS Lab fan data.

Size (inch)	Statewide Measure Offering ID	Existing Description	Standard Description
24 - 26	A	Standard, Ag ventilation fan, 24 - 26 inch	Standard, Ag ventilation fan, 24 - 26 inch
36	B	Standard, Ag ventilation fan, 36 inch	Standard, Ag ventilation fan, 36 inch
48	C	Standard, Ag ventilation fan, 48 inch	Standard, Ag ventilation fan, 48 inch
50 - 62	D	Standard, Ag ventilation fan, 50 - 62 inch	Standard, Ag ventilation fan, 50 - 62 inch
72	E	Standard, Ag ventilation fan, 72 inch	Standard, Ag ventilation fan, 72 inch
84	F	Standard, Ag ventilation fan, 84 inch	Standard, Ag ventilation fan, 84 inch

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC
Gas Impact Profile ID	SummerOnly

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.33	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	982.82	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	3,365.18	Link
Base Case Costs ($)	2,716.29	
Incremental Cost ($)	648.89	
Effective Useful Life (years)	13.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWPR_Summary.xlsx

Others:

Program Exclusions
The custom measure data shows that 50-62” fans are not replaced one-to-one with 72 in or 84 in fans, because the larger fans have higher airflows (cfm). Therefore, the 72 in and 84 in fan offerings assume that a lesser number of 72 in or 84 in fans are replacing a greater number of 50-62 in fans, such that the same airflow is maintained between base and measure case. Fan sizes 24 in through 62 in must have been tested by ANSI/AMCA 230-12 or later agricultural fan testing protocol and must meet the minimum required efficiencies. Since 72 in and 84 in fans are assumed to be inherently more efficient than the smaller baseline fans, there is no minimum efficiency requirement for the 72 in and 84 in offerings so long as they exceed the standard efficiency of 52 in - 62 in offering. In addition, a lower number of 72 in and 84 in measure case fans are eligible to replace a larger number of existing fans, so long as measure eligibility regarding airflow (cfm) is followed. To accommodate fan sizes that do not exactly match measure case fan sizes, the following shows the range of fans sizes that are eligible for each fan size category: • Offering Fan Sizes: Bin Fan Sizes • 24 in - 26 in: 22 in - 30 in • 36 in: 31 in - 40 in • 48 in: 41 in - 49 in • 50 in - 62 in: 50 in - 62 in • 72 in: 63 in - 76 in • 84 in: 77 in - 86 in Inherently variable speed fans, such as those with electronically commutated motors (ECMs) are eligible for this measure and can be programmed to operate in variable speed mode when installed. However, the savings associated with this measure do not assume variable speed operation, only increased fan efficiency.
Quality Assurance: Design, Installation, Commissioning, and Operation
For one-to-one replacements (up to 62 in), the NC application type should be used when adding to the existing fan count. For non-one-to-one replacements with the 72 in and 84 in offerings, the implementer should compare total base and measure case fan system airflows (cfm) and the NC application type should be used when installing fans to increase the space/stalls served or to increase the flow (cfm) serving the same area.
Important Notes
None

VFD for Glycol Pump Motor

https://www.caetrm.com/measure/SWPR002/03/

USE CATEGORY
PR - Process

EFFECTIVE START DATE
1/1/2026

VERSION
SWPR002-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

Installation of a new variable frequency drive (VFD) on a constant speed glycol circulation pump

Motor Rated Horsepower	Statewide Measure Offering ID	Measure Offering Description
10 hp	D	Glycol pump VFD, winery, 10 hp
15 hp	E	Glycol pump VFD, winery, 15 hp
20 hp	F	Glycol pump VFD, winery, 20 hp
25 hp	G	Glycol pump VFD, winery, 25 hp
3 hp	A	Glycol pump VFD, winery, 3 hp
5 hp	B	Glycol pump VFD, winery, 5 hp
7.5 hp	C	Glycol pump VFD, winery, 7.5 hp

Base Case Description

An existing glycol circulation pump operating at a constant speed, without a VFD.

Motor Rated Horsepower	Statewide Measure Offering ID	Existing Description	Standard Description
10 hp	D	Glycol pump, winery, constant speed, 10 hp	Glycol pump, winery, constant speed, 10 hp
15 hp	E	Glycol pump, winery, constant speed, 15 hp	Glycol pump, winery, constant speed, 15 hp
20 hp	F	Glycol pump, winery, constant speed, 20 hp	Glycol pump, winery, constant speed, 20 hp
25 hp	G	Glycol pump, winery, constant speed, 25 hp	Glycol pump, winery, constant speed, 25 hp
3 hp	A	Glycol pump, winery, constant speed, 3 hp	Glycol pump, winery, constant speed, 3 hp
5 hp	B	Glycol pump, winery, constant speed, 5 hp	Glycol pump, winery, constant speed, 5 hp
7.5 hp	C	Glycol pump, winery, constant speed, 7.5 hp	Glycol pump, winery, constant speed, 7.5 hp

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Ag - Agricultural
Building Type	VPr - Vineyards and Processing
Building Vintage	Ex - Existing \ Median Age
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	20,434.29	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	4,414.11	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	15.00	

Streamlined Permutations: SWPR_Summary.xlsx

Others:

Program Exclusions
This measure involves the installation of a variable frequency drive (VFD) on an existing glycol pump motor. Chilled fluid, other than glycol, can be considered only if the unit energy savings (UES) is equal to or exceeds the UES of this measure. This measure is for the addition of a VFD on an existing glycol pump motor. If the existing constant speed pump motor must be replaced because it cannot accommodate a VFD, such as it not being inverter rated, then a new pump motor may be installed that works with the VFD. This is allowed because pump motor replacements are considered repairs and do not trigger Title 24 code. However, no additional energy savings shall be claimed through this measure package for increased pump motor efficiency and the pump motor replacement cost shall not be considered as part of the measure install cost. The existing glycol pump(s) must operate at constant speed. The VFD must have automated controls based on pressure feedback, fluid temperature feedback, and/or flow rate feedback. The VFD is recommended to meet requirements as specified by IEEE Standard 519-2022. This measure is only applicable to the winery industry for process end-use applications. This measure is not eligible for a back-up pump or redundant pump.
Quality Assurance: Design, Installation, Commissioning, and Operation
Customer must provide documentation that the VFD is not installed on a back-up pump or redundant pump. Determine if the application of VFD control is appropriate. Ensure that the VFD is installed correctly and that pump speed is controlled appropriately.
Important Notes
None

Steam Trap, Commercial

https://www.caetrm.com/measure/SWPR003/03/

USE CATEGORY
PR - Process

EFFECTIVE START DATE
1/1/2026

VERSION
SWPR003-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A steam trap replacement in a commercial “12 - 24 hours per day” facility – with a steam plant operating a steam boiler for 12 to 24 hours per day.

Statewide Measure Offering ID	Measure Offering Description
A	Steam trap replacement, commercial

Base Case Description

A failed steam trap (in either the leaking failure or the blow-through failure mode).

Statewide Measure Offering ID	Existing Description	Standard Description
A	Steam trap, failed leaking or blow-thru	Steam trap replacement

Applicable Parameters:

Parameters	Labels
Measure Application Type	BRO-RCx - BRO-Retrocommissioning
Sector	Com - Commercial
Building Type	Com - Commercial
Building Vintage	Ex - Existing \ Median Age
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	119.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	550.35	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	3.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWPR_Summary.xlsx

Others:

Program Exclusions
The customer may be required to provide the location of the new steam trap in the steam loop, make and model number, a specification sheet, approximate (±5 psig) steam line (not boiler) pressure, and receipts showing the cost and purchase date Steam traps designed for any pipe size are eligible. This measure is only applicable for commercial "12-24 hours per day" facilities – primarily large commercial facilities with a steam plant operating a steam boiler for 12 to 24 hours per day. Small commercial facilities which operate their steam systems less than 12 hours per day are excluded
Quality Assurance: Design, Installation, Commissioning, and Operation
Obtain a copy of any ultrasonic testing and mapping of failed steam traps, including information on steam trap pressure, steam trap type, location, and load/end use served. Verify the quantity of steam traps failed in the closed position. Verify quantity and type of new steam traps installed.
Important Notes
None

Circulating Block Heater

https://www.caetrm.com/measure/SWPR004/05/

USE CATEGORY
PR - Process

EFFECTIVE START DATE
1/1/2026

VERSION
SWPR004-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A recirculation pump with an electric resistance heater to a backup diesel generator. Offerings are tiered based upon the backup generator sizes and dependent upon whether the existing block heater is properly sized (>1 kW) or undersized (≥1 kW).

Generator Size (kW)	Sizing	Statewide Measure Offering ID	Measure Offering Description
200 - 799	Properly Sized	D	Circulating block heater, 200 - 799 kW, properly sized base case
200 - 799	Undersized	C	Circulating block heater, 200 - 799 kW, undersized base case
37 - 199	Properly Sized	B	Circulating block heater, 37 - 199 kW, properly sized base case
37 - 199	Undersized	A	Circulating block heater, 37 - 199 kW, undersized base case

Base Case Description

A thermosiphon heater with a recirculation pump and a shorter runtime electric resistance heater that relies on the change in density (impacting buoyancy) to circulate the heated coolant.

Generator Size (kW)	Sizing	Statewide Measure Offering ID	Existing Description	Standard Description
200 - 799	Properly Sized	D	Thermosiphon heater, 200 - 799 kW, properly sized	Thermosiphon heater, 200 - 799 kW, properly sized
200 - 799	Undersized	C	Thermosiphon heater, 200 - 799 kW, undersized	Thermosiphon heater, 200 - 799 kW, undersized
37 - 199	Properly Sized	B	Thermosiphon heater, 37 - 199 kW, properly sized	Thermosiphon heater, 37 - 199 kW, properly sized
37 - 199	Undersized	A	Thermosiphon heater, 37 - 199 kW, undersized	Thermosiphon heater, 37 - 199 kW, undersized

Applicable Parameters:

Parameters	Labels
Measure Application Type	NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Chillers
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.51	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	3,052.69	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,189.31	Link
Base Case Costs ($)	824.34	
Incremental Cost ($)	364.97	
Effective Useful Life (years)	6.70	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWPR_Summary.xlsx

Others:

Program Exclusions
An existing backup generator is eligible for this measure if it is not currently fitted with a circulating block heater or device utilizing a similar electro-mechanical system to heat and circulate generator block pre-warming fluid. Furthermore, the replacement of an existing generator equipped with a thermosiphon system with a new generator equipped with a circulating block heater is also considered eligible. Additional eligibility requirements regarding the installation include: Installer should follow manufacturer's installation requirements and assess and perform (if necessary) fluid hose adjustments that may be associated with the retrofit to enable the circulating block heater to function at optimal energy efficiency. This measure is not eligible for heat pump generator block heaters.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

VFD for Dust Collection Fan

https://www.caetrm.com/measure/SWPR005/03/

USE CATEGORY
PR - Process

EFFECTIVE START DATE
1/1/2026

VERSION
SWPR005-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a variable speed drive (VSD) on an existing dust collection fan.

Fan Motor Nameplate Horsepower	Statewide Measure Offering ID	Measure Offering Description
10 hp	A	Dust collection fan VSD (10 hp motor)
100 hp	J	Dust collection fan VSD (100 hp motor)
125 hp	K	Dust collection fan VSD (125 hp motor)
15 hp	B	Dust collection fan VSD (15 hp motor)
150 hp	L	Dust collection fan VSD (150 hp motor)
20 hp	C	Dust collection fan VSD (20 hp motor)
25 hp	D	Dust collection fan VSD (25 hp motor)
30 hp	E	Dust collection fan VSD (30 hp motor)
40 hp	F	Dust collection fan VSD (40 hp motor)
50 hp	G	Dust collection fan VSD (50 hp motor)
60 hp	H	Dust collection fan VSD (60 hp motor)
75 hp	I	Dust collection fan VSD (75 hp motor)

Base Case Description

An existing, fixed-speed dust collection fan with a rated individual motor capacity from 10 hp to 150 hp.

Fan Motor Nameplate Horsepower	Statewide Measure Offering ID	Existing Description	Standard Description
10 hp	A	Constant speed fan motor	Constant speed fan motor
100 hp	J	Constant speed fan motor	Constant speed fan motor
125 hp	K	Constant speed fan motor	Constant speed fan motor
15 hp	B	Constant speed fan motor	Constant speed fan motor
150 hp	L	Constant speed fan motor	Constant speed fan motor
20 hp	C	Constant speed fan motor	Constant speed fan motor
25 hp	D	Constant speed fan motor	Constant speed fan motor
30 hp	E	Constant speed fan motor	Constant speed fan motor
40 hp	F	Constant speed fan motor	Constant speed fan motor

Fan Motor Nameplate Horsepower	Statewide Measure Offering ID	Existing Description	Standard Description
50 hp	G	Constant speed fan motor	Constant speed fan motor
60 hp	H	Constant speed fan motor	Constant speed fan motor
75 hp	I	Constant speed fan motor	Constant speed fan motor

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Ag - Agricultural, Ind - Industrial
Building Type	AgOth - Other Agricultural, Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	9.77	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	50,883.16	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	10,044.81	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	13.00	

Streamlined Permutations: SWPR_Summary.xlsx

Others:

Program Exclusions
The customer must have an existing electrically operated fixed-speed fan installed on site or plans to install a new electrically operated fixed-speed fan. The existing fan motors cannot be two- speed and cannot have an existing VSD, including failed VSD. The existing baghouse, fan, and motor must be in proper operating condition. The baghouse fan motor must be compatible with a variable speed drive (VSD). (Motors that are compatible with VSDs vary by manufacturer. Compatible motors may be labeled as inverter duty, VSD ready, or have insulation classification F.) The installed VSD must be controlled based on static pressure, airflow rate (cfm), or velocity at the lowest required rate to keep particulates suspended in the air stream. The VSD is recommended to meet requirements as specified by IEEE Standard 519-2014. Both agricultural and industrial sectors are applicable for fan motors 50 hp or smaller, whereas fan motors larger than 50 hp are limited to the agricultural sector. The following are ineligible: • HVAC fan • A designed high-pressure blower. High pressure blowers have designed capacities of <150 cfm/hp. (Applicable only to fan motors larger than 50 hp). • An individual fan motor rated <10 hp or >150 hp • A two-speed fan motor or a motor with an existing VSD, including failed VSD.
Quality Assurance: Design, Installation, Commissioning, and Operation
Determine if the application of VSD control is appropriate. Ensure that the VSD is installed correctly, and that fan speed is controlled appropriately.
Important Notes
None

VSD for Ventilation Fan, Agricultural

https://www.caetrm.com/measure/SWPR006/03/

USE CATEGORY
PR - Process

EFFECTIVE START DATE
1/1/2026

VERSION
SWPR006-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a variable speed drive (VSD) on an existing barn ventilation fan. The VSD varies the speed of the fan automatically based on ambient dry bulb (DB) temperature.

Statewide Measure Offering ID	Measure Offering Description
B	VSD for Ag ventilation fan (1 to 5 hp)

Base Case Description

An existing fixed-speed fan, continuously operated or have ON/OFF control, with a rated individual motor capacity ≤5 hp

Statewide Measure Offering ID	Existing Description	Standard Description
B	Fixed speed fan motor	Fixed speed fan motor

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Ag - Agricultural
Building Type	ALF - Livestock Farms, AgOth - Other Agricultural
Building Vintage	Ex - Existing \ Median Age
Building Location	CZ06 - Torrance, CZ07 - San Diego-Lindbergh, CZ08 - Fullerton, CZ09 - Burbank-Glendale, CZ10 - Riverside, CZ11 - Red Bluff Area, CZ12 - Sacramento Area, CZ13 - Fresno Area, CZ14 - Palmdale, CZ15 - Palm Springs-Intl
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Rated-HP - nameplate HP
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.14	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	1,248.00	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	1,021.32	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	13.00	

Streamlined Permutations: SWPR_Summary.xlsx

Others:

Program Exclusions
The VSD application requires controlling multiple fans from 1 to 5 hp each in arrays with one VSD or one VSD for each fan. The customer must have an existing electrically operated fixed speed fan, in proper operating condition, installed on site or plans to install a new electrically operated fixed speed fan. The existing fan motor must be compatible with a VSD. (Motors that are compatible with VSDs vary by manufacturer. Compatible motors may be labeled as inverter duty, VSD ready, or have insulation classification F.) If the existing fixed-speed fan motor must be replaced because it cannot accommodate a VSD, such as it not being inverter rated, then a new fan motor may be installed that works with the VSD. This is allowed because fan motor replacements are considered repairs and do not trigger Title 24 code. However, no additional energy savings shall be claimed through this measure package for increased fan motor efficiency and the fan motor replacement cost shall not be considered as part of the measure install cost. The VSD must be installed as close to the motor as possible when applying VSD to a standard duty NEMA motor. Failure to do so may result in premature motor failure. Sufficient airflow must be maintained through the motor to prevent overheating. The VSD is recommended to meet requirements as specified by IEEE Standard 519-2022. The measure is only applicable for climate zones CZ06 - CZ15. The historical Dairy and Winery Industry Efficiency Solutions (DWIES) project data, used in this measure analysis, only estimates fan operating hours in CZ12 and CZ13. Analysis for the temperature bin hours found CZ06 - CZ15 show similar operating characteristics as CZ12 and CZ13, while CZ01 - CZ05 and CZ16 exhibited different characteristics. In addition, PG&E program data showed there were no applicable projects in the data set for climate zones CZ01 to CZ05. The following are ineligible: • HVAC, exhaust, pressurization, or other process applications unrelated to barn ventilation. • Motors >5 hp or <1 hp • A two-speed fan motor or a motor with an existing VSD, including failed VSD.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Steam Boiler Economizer, Industrial

https://www.caetrm.com/measure/SWPR007/02/

USE CATEGORY
PR - Process

EFFECTIVE START DATE
1/1/2026

VERSION
SWPR007-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A natural gas process boiler that is retrofit with either a feedwater or condensing economizer and is meeting the specified thermal efficiency (TE).

System Type	Measure Case Thermal Efficiency	Statewide Measure Offering ID	Measure Offering Description
Condensing Economizer	87.2% TE	B	Process boiler, condensing economizer, 87.2% TE
Feedwater Economizer	81.4% TE	A	Process boiler, feedwater economizer, 81.4% TE

Base Case Description

A natural gas steam boiler that operates with no flue stack heat recovery system and is meeting Title 20 and Title 24 minimum TE requirement.

System Type	Measure Case Thermal Efficiency	Statewide Measure Offering ID	Standard Description	Existing Description
Condensing Economizer	87.2% TE	B	Process boiler, steam >= 300,000 Btu/hr, 79% TE	Process boiler, steam >= 300,000 Btu/hr, 79% TE
Feedwater Economizer	81.4% TE	A	Process boiler, steam >= 300,000 Btu/hr, 79% TE	Process boiler, steam >= 300,000 Btu/hr, 79% TE

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NC - New Construction
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	1.89	Link
Standard - Gas Savings (therm/yr)	1.89	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	3.22	Link
Base Case Costs ($)	0.00	
Incremental Cost ($)	3.22	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	6.70	

Streamlined Permutations: SWPR_Summary.xlsx

Others:

Program Exclusions
This measure is only applicable to steam boilers with an input rating ≤20 million Btu/hr. Hot water boilers are not eligible. For a dual-stage economizer: • The disposal of combustion condensate must meet local codes regarding sanitary drain or storm sewer. • Some applications may require a neutralizer for the acidic combustion condensate. There are no boiler efficiency eligibility requirements for the measure, for both single-stage and dual-stage economizers. The efficiency gains were averaged from past custom projects (estimated improvement at 2% and 8% for single and dual stage economizer, respectively). The following conditions provide good candidates for an economizer retrofit: • Steam boilers that exceed 100 boiler horsepower (>3.3 Million Btu/hr). • Steam boiler exiting stack temperature at greater than 400°F. • Operating at steam pressures of 75 psig or above. • Boiler load factor of at least 40%. • Average temperature of the exiting flue stack from the economizer must be below 200°F to cause water vapor condensation in dual-stage economizer. • Minimum 50% make-up water for dual-stage economizer.
Quality Assurance: Design, Installation, Commissioning, and Operation
The boiler manufacturer, model, and spec sheet should be submitted for verification.
Important Notes
None

VFD on Rod Beam Pump

https://www.caetrm.com/measure/SWPR008/02/

USE CATEGORY
PR - Process

EFFECTIVE START DATE
1/1/2026

VERSION
SWPR008-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of variable frequency drive (VFD) controls on a constant speed rod beam pump without pump off controllers (POC) or existing VFD controls.

Motor Rated HP	Statewide Measure Offering ID	Measure Offering Description	Applicable Range
10 HP	A	Rod beam VFD pump 10 HP	6-15 HP
100 HP	G	Rod beam VFD pump 100 HP	88-125 HP
150 HP	H	Rod beam VFD pump 150 HP	126-175 HP
20 HP	B	Rod beam VFD pump 20 HP	16-25 HP
30 HP	C	Rod beam VFD pump 30 HP	26-35 HP
40 HP	D	Rod beam VFD pump 40 HP	36-45 HP
50 HP	E	Rod beam VFD pump 50 HP	46-63 HP
75 HP	F	Rod beam VFD pump 75 HP	64-87 HP

Base Case Description

An existing operating rod beam pump powered by a 10 thru 150 hp motor without POC or existing VFD controls.

Motor Rated HP	Statewide Measure Offering ID	Existing Description	Standard Description
10 HP	A	Rod beam pump without controls, gas production or petroleum, 10 HP	Rod beam pump without controls, gas production or petroleum, 10 HP
100 HP	G	Rod beam pump without controls, gas production or petroleum, 100 HP	Rod beam pump without controls, gas production or petroleum, 100 HP
150 HP	H	Rod beam pump without controls, gas production or petroleum, 150 HP	Rod beam pump without controls, gas production or petroleum, 150 HP
20 HP	B	Rod beam pump without controls, gas production or petroleum, 20 HP	Rod beam pump without controls, gas production or petroleum, 20 HP
30 HP	C	Rod beam pump without controls, gas production or petroleum, 30 HP	Rod beam pump without controls, gas production or petroleum, 30 HP
40 HP	D	Rod beam pump without controls, gas production or petroleum, 40 HP	Rod beam pump without controls, gas production or petroleum, 40 HP
50 HP	E	Rod beam pump without controls, gas production or petroleum, 50 HP	Rod beam pump without controls, gas production or petroleum, 50 HP

Motor Rated HP	Statewide Measure Offering ID	Existing Description	Standard Description
75 HP	F	Rod beam pump without controls, gas production or petroleum, 75 HP	Rod beam pump without controls, gas production or petroleum, 75 HP

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Ind - Industrial
Building Type	IGP - Gas Production, IPe - Petroleum
Building Vintage	Ex - Existing \ Median Age
Building Location	Any - Any Location
Delivery Type	Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_Non-CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	6.38	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	54,248.75	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	11,823.22	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	15.00	

Streamlined Permutations: SWPR_Summary.xlsx

Others:

Program Exclusions
The rod beam pump shall have a constant speed motor with no controls, including failed controls. This measure must constitute installation of new VFD controls on an existing constant speed rod beam pump motor. If the existing constant speed pump motor must be replaced because it cannot accommodate a VFD, such as it not being inverter rated, then a new pump motor may be installed that works with the VFD. This is allowed because pump motor replacements are considered repairs and do not trigger Title 24 code. However, no additional energy savings shall be claimed through this measure package for increased pump motor efficiency and the pump motor replacement cost shall not be considered as part of the measure install cost. The measure case VFD controls must have automated controls based on pressure feedback, fluid temperature feedback, and/or flow rate feedback. The VFD is recommended to meet requirements as specified by IEEE Standard 519-2022. The pump must meet a minimum of 2,000 operating hours. The following are not eligible: • Pumping applications outside of the oil and gas production facilities and refineries and associated processes. • Back-up or redundant pump.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Pool Cover, Commercial

https://www.caetrm.com/measure/SWRE001/04/

USE CATEGORY
RE - Recreation

EFFECTIVE START DATE
1/1/2026

VERSION
SWRE001-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a pool cover on an uncovered outdoor or indoor pool heated with natural gas.

Outdoor/Indoor	Statewide Measure Offering ID	Measure Offering Description
Indoor	B	Pool cover, indoor
Outdoor	A	Pool cover, outdoor

Base Case Description

An uncovered indoor or outdoor pool, heated with natural gas, at a commercial or multifamily facility

Outdoor/Indoor	Statewide Measure Offering ID	Existing Description	Standard Description
Indoor	B	No pool cover, indoor	No pool cover, indoor
Outdoor	A	No pool cover, outdoor	No pool cover, outdoor

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Res - Residential
Building Type	Any - All Subsectors, CRe - Municipal - City Parks/Recreations, ECC -Education - Community College, EUn - Education - University, Fhc - Fitness Center - Private Health Club, MFm - Residential Multi-family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones, Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Area-ft2 - square feet of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	3.13	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	21.66	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	3.30	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWRE_Summary.xlsx

Others:

Program Exclusions
This measure requires that there is no existing pool cover, or the existing pool cover is no longer effective. Eligibility requirements include: • The pool must be heated with natural gas. • The new pool cover must cover at least 95% of the pool. • The new pool cover must have a minimum R-value of 0.5 ft2-hr-F/Btu (R=L/K). R-value of 0.5 is the thermal resistance of the cover itself. • Proof of minimum five-year warranty (any combination of manufacturers and/or extended applies). • Proof of cover thickness and K factor (found on the manufacturer specification sheet). • Olympic size pools must have a storage reel system either manual or automatic winding.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Heater for Pool or Spa, Commercial and Multifamily

https://www.caetrm.com/measure/SWRE003/04/

USE CATEGORY
RE - Recreation

EFFECTIVE START DATE
1/1/2026

VERSION
SWRE003-04

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12/31/2028

Measure Case and Base Case Description:

Offering ID

A natural gas pool water heater with a thermal efficiency (TE) rating of at least 84%.

Measure Case Efficiency	Pool Location	Statewide Measure Offering ID	Measure Offering Description
84% TE	Indoor	B	Tier 1 efficient commercial pool and spa heater, indoor (TE >= 84%)
84% TE	Outdoor	C	Tier 1 efficient commercial pool and spa heater, outdoor (TE >= 84%)
94% TE	Indoor	D	Tier 2 efficient commercial pool and spa heater, indoor (TE >= 94%)
94% TE	Outdoor	E	Tier 2 efficient commercial pool and spa heater, outdoor (TE >= 94%)

Base Case Description

A pool heater that meets 2013 Title 10 minimum TE of 82% TE.

Measure Case Efficiency	Pool Location	Statewide Measure Offering ID	Existing Description	Standard Description
84% TE	Indoor	B	Code minimum efficiency commercial pool and spa heater (82% TE)	Code Minimum Efficiency commercial pool and spa heater (82% TE)
84% TE	Outdoor	C	Code minimum efficiency commercial pool and spa heater (82% TE)	Code minimum efficiency commercial pool and spa heater (82% TE)
94% TE	Indoor	D	Code minimum efficiency commercial pool and spa heater (82% TE)	Code minimum efficiency commercial pool and spa heater (82% TE)
94% TE	Outdoor	E	Code minimum efficiency commercial pool and spa heater (82% TE)	Code minimum efficiency commercial pool and spa heater (82% TE)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Res - Residential
Building Type	Any - All Subsectors, CRe - Municipal - City Parks/Recreations, ECC - Education - Community College, ESe - Education - Secondary School, EUn - Education - University, Fhc - Fitness Center - Private Health Club, Htl - Lodging - Hotel, MFm - Residential Multi-family, Mtl - Lodging - Motel
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones, Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	1.77	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	29.25	Link
Base Case Costs ($)	13.77	
Incremental Cost ($)	15.48	
Effective Useful Life (years)	5.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWRE_Summary.xlsx

Others:

Program Exclusions
This measure is available for swimming pool heating and the unit must replace pre-existing pool heater. The commercial pool heater must have a TE ≥84% and an ON/OFF switch and no pilot light. Single-family residences (residential homeowners) are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
This measure is applicable to all pool sizes to accommodate the energy savings opportunity associated with the significant number of smaller and larger heated commercial pools.

Pool Heater, Residential

https://www.caetrm.com/measure/SWRE004/04/

USE CATEGORY
RE - Recreation

EFFECTIVE START DATE
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SWRE004-04

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12/31/2028

Measure Case and Base Case Description:

Offering ID

An energy efficient natural gas pool or spa heater that meets the specified thermal efficiency (TE). Tier 1 denotes non-condensing heaters and Tier 2 denotes condensing boilers, which may require additional modifications to the existing system configuration as the flue requirements are substantially different than the non-condensing alternative.

Tier	Statewide Measure Offering ID	Measure Offering Description
Tier 1: 84% or above	A	Pool and spa heater in single family building - 84% TE
Tier 2: 94% or above	C	Pool and spa heater in single family building - 94% TE

Base Case Description

A natural gas pool or spa water heater meeting 2021 Title 20 and 2013 Title 10 minimum TE requirement.

Tier	Statewide Measure Offering ID	Existing Description	Standard Description
Tier 1: 84% or above	A	Pool and spa heater in single family building - 82% TE	Pool and spa heater in single family building - 82% TE
Tier 2: 94% or above	C	Pool and spa heater in single family building - 82% TE	Pool and spa heater in single family building - 82% TE

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	47.03	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	6,092.00	Link
Base Case Costs ($)	3,768.00	
Incremental Cost ($)	2,324.00	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWRE_Summary.xlsx

Others:

Program Exclusions
If the heater will be installed in a low NOx area, the replacement unit must also meet NOx emissions standards set forth by the governing air quality management district.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
This is a fuel substitution measure. Measure savings are weighted average of pools with no covers and the average of pools with vinyl, bubble/solar, and insulated covers.

Heat Pump Pool Heater, Residential, Fuel Substitution

https://www.caetrm.com/measure/SWRE005/06/

USE CATEGORY
RE - Recreation

EFFECTIVE START DATE
1/1/2026

VERSION
SWRE005-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A heat pump (HP) pool heater that meets 2025 Title 24 minimum requirement of 5.5 coefficient of performance (COP) (i.e., code standard offerings) or exceeds the requirement with ≥5.8 COP (i.e., efficient offerings) replacing a standard efficiency natural gas-fired pool water heater.

Measure Case Technology	Area	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
Code Standard Heat Pump Pool Heater	Common	AR	F	Standard efficiency heat pump pool heater replacing standard efficiency natural gas pool heater in common area pool (AR)
Code Standard Heat Pump Pool Heater	Common	NR	H	Standard efficiency heat pump pool heater replacing standard efficiency natural gas pool heater in common area pool (NR)
Code Standard Heat Pump Pool Heater	Dwelling	AR	E	Standard efficiency heat pump pool heater replacing standard efficiency natural gas pool heater in single family pool (AR)
Code Standard Heat Pump Pool Heater	Dwelling	NR	G	Standard efficiency heat pump pool heater replacing standard efficiency natural gas pool heater in single family pool (NR)
Efficient Heat Pump Pool Heater	Common	AR	J	Efficient heat pump pool heater replacing standard efficiency natural gas pool heater in common area pool (AR)
Efficient Heat Pump Pool Heater	Common	NR	L	Efficient heat pump pool heater replacing standard efficiency natural gas pool heater in common area pool (NR)
Efficient Heat Pump Pool Heater	Dwelling	AR	I	Efficient heat pump pool heater replacing standard efficiency natural gas pool heater in single family pool (AR)
Efficient Heat Pump Pool Heater	Dwelling	NR	K	Efficient heat pump pool heater replacing standard efficiency natural gas pool heater in single family pool (NR)

Base Case Description

A natural gas pool water heater meeting 2021 CA Title 20 and 2013 code of federal regulations (10 CFR 430) minimum thermal efficiency (TE) requirement.

Measure Case Technology	Area	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Code Standard Heat Pump Pool Heater	Common	AR	F	Standard efficiency natural gas pool heater in common area pool	Standard efficiency natural gas pool heater in common area pool
Code Standard Heat Pump Pool Heater	Common	NR	H	Standard efficiency natural gas pool heater in common area pool	Standard efficiency natural gas pool heater in common area pool
Code Standard Heat Pump Pool Heater	Dwelling	AR	E	Standard efficiency natural gas pool heater in single family pool	Standard efficiency natural gas pool heater in single family pool
Code Standard Heat Pump Pool Heater	Dwelling	NR	G	Standard efficiency natural gas pool heater in single family pool	Standard efficiency natural gas pool heater in single family pool
Efficient Heat Pump Pool Heater	Common	AR	J	Standard efficiency natural gas pool heater in common area pool	Standard efficiency natural gas pool heater in common area pool
Efficient Heat Pump Pool Heater	Common	NR	L	Standard efficiency natural gas pool heater in common area pool	Standard efficiency natural gas pool heater in common area pool
Efficient Heat Pump Pool Heater	Dwelling	AR	I	Standard efficiency natural gas pool heater in single family pool	Standard efficiency natural gas pool heater in single family pool
Efficient Heat Pump Pool Heater	Dwelling	NR	K	Standard efficiency natural gas pool heater in single family pool	Standard efficiency natural gas pool heater in single family pool

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:RefgFrzr_Recyc-UnConditioned
Gas Impact Profile ID	Summer Only

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-2,044.58	Link
Standard - Electric Savings (kWh/yr)	-2,044.58	
Existing - Gas Savings (therm/yr)	395.19	Link
Standard - Gas Savings (therm/yr)	395.19	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	9,057.42	Link
Base Case Costs ($)	7,431.91	
Incremental Cost ($)	1,625.51	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	3.30	

Streamlined Permutations: SWRE_Summary.xlsx

Others:

Program Exclusions
The COP value used to verify the eligibility of the product should be the High Air Temperature - Mid Humidity value from the AHRI database. Only single heat pump systems are eligible. Multi-HP pool heaters are not eligible due to noise level and cost, among other concerns. Spa equipment is also not eligible. Since this measure is assumed to be installed outdoors, it is eligible for installation in unconditioned spaces. Measure implementation shall comply with all applicable codes and regulations, including but not limited to the latest versions of California Title 24, Part 6; the California Building Code; and the National Electric Code. Since the installation of pool covers are required for alterations of pool equipment systems, the implementer shall ensure that the existing pool already has a pool cover or that a pool cover is installed in full compliance with code during implementation.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
This is a fuel substitution measure. Measure savings are weighted average of pools with no covers and the average of pools with vinyl, bubble/solar, and insulated covers.

Duct Seal, Residential

https://www.caetrm.com/measure/SWSV001/07/

USE CATEGORY
SV - Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWSV001-07

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

This measure is defined as duct sealing to reduce total leakage from a “high” or “medium” leakage rate to a “low” leakage rate, as specified by residence type (single family, multifamily, and double-wide mobile home).

Building Year	Home Type	Base Case Leakage Tier	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
< 2006	Non-DMo	High	BW	O	Duct seal and test, residential, high to low (40% to 12%) for SFm/MFm < 2006
< 2006	Non-DMo	Medium	BW	P	Duct seal and test, residential, medium to low (24% to 12%) for SFm/MFm < 2006
>= 2006	Non-DMo	High	BRO-RCx	Q	Duct seal and test, residential, high to low (40% to 12%) for SFm/MFm >= 2006
>= 2006	Non-DMo	Medium	BRO-RCx	R	Duct seal and test, residential, medium to low (24% to 12%) for SFm/MFm >= 2006
Any	DMo	High	BW	S	Duct seal and test, residential, high to low (35% to 15%) for DMo
Any	DMo	Medium	BW	T	Duct seal and test, residential, medium to low (25% to 15%) for DMo

Base Case Description

A single family, multifamily, or double-wide mobile home with a "high" or "medium" duct leakage rate, as specified by residence type. Leakage rate is the sum of supply and return.

Building Year	Home Type	Base Case Leakage Tier	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
< 2006	Non-DMo	High	BW	O	Existing residential duct system, 40% leakage	Existing residential duct system, 40% leakage
< 2006	Non-DMo	Medium	BW	P	Existing residential duct system, 24% leakage	Existing residential duct system, 24% leakage

Building Year	Home Type	Base Case Leakage Tier	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
>= 2006	Non-DMo	High	BRO-RCx	Q	Existing residential duct system, 40% leakage	Existing residential duct system, 40% leakage
>= 2006	Non-DMo	Medium	BRO-RCx	R	Existing residential duct system, 24% leakage	Existing residential duct system, 24% leakage
Any	DMo	High	BW	S	Existing residential duct system, 35% leakage	Existing residential duct system, 35% leakage
Any	DMo	Medium	BW	T	Existing residential duct system, 25% leakage	Existing residential duct system, 25% leakage

Applicable Parameters:

Parameters	Labels
Measure Application Type	BRO-RCx - BRO-Retrocommissioning, BW - Building Weatherization
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer
Normalized Unit	Area-ft2-BA - square feet of Building area
Electric Impact Profile ID	DEER:HVAC_Eff_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.19	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.01	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	0.69	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	12.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWSV_Summary.xlsx

Others:

Program Exclusions
Homes constructed prior to 2006 are classified as building weatherization measures (BW), whereas those constructed in 2006 or later are classified as retrocommissioning (BRO-RCx) measures. All mobile home measures are classified as BW measures. The following shows the required duct leakage reduction: • For the Med-Low offering, the leakage reduction must be ≥12% but <28% for single family and multifamily dwelling units and ≥10% but <20% for mobile homes. • For the High-Low offering, the leakage reduction must be ≥28% for single family and multifamily dwelling units and ≥20% for mobile homes. • For all offerings, the final leakage rate cannot be >14% for single family and multifamily dwelling units and >17% for mobile homes.

Quality Assurance: Design, Installation, Commissioning, and Operation

Up to two duct tests must be conducted. The first or "test-in" is a system check to determine whether the duct system tightness meets the California Title 24 specifications. If the test-in shows that duct leakage exceeds minimum tightness specifications, and the technicians correct the situation, then a second test or "test-out" must be conducted to verify proper duct tightness was achieved. Energy savings are associated with the test-out procedure; energy savings are not assigned to the "test-in" procedure.

Existing duct leakage must be recorded after comprehensive field testing. The testing can be performed while the system is pressurized using a duct blower fan to ensure the target leakage thresholds are achieved. Duct sealing shall be performed on the unpressurized system. After installation, testing shall be performed to ensure the target leakage thresholds are achieved. Duct leakage tests titled "Duct Pressurization and Leakage Flow Measurement" and "Duct Leakage to Outside Measurement" are the only two eligible duct leakage tests referenced in California Building Energy Efficiency Standards (Title 24) Reference Appendix 3, which contains the same standards referenced in ANSI/ RESNET/ICC Standard 380-2019. However, only one of the two types of duct leakage tests, such as the total leakage or the leakage to outside tests, is required to justify duct leakage for this measure. Photos and test results can serve as documentation that the work was performed on an existing HVAC system.

The following prerequisites must be met before the Quality Maintenance (QM) treatments, such as airflow adjustments, can be implemented to ensure an HVAC system is running optimally. The unit and system must be capable of delivering a supply airflow rate of at least 350 cfm/ton after treatments related to airflow are completed and before refrigerant charge is tested and/or adjusted. The requirement ensures that the refrigerant system can be properly diagnosed and charged. If the system is not delivering 350 cfm/ton upon initial inspection, an assessment should be made to determine if the system will be able to deliver 350 cfm/ton by implementing some or all of the QM treatments related to airflow. If it is determined that the supply fan and duct system in place do not have the capability to deliver 350 cfm/ton after the airflow treatments have been performed, the refrigerant charge cannot be properly diagnosed, rendering the QM process incomplete and the savings of this measure invalid. The unit must be drawing power. The unit must have a condenser over ambient temperature (COAT) of at least 3 degrees. An assessment and report are required in accordance with Air Conditioning Contractors of America (ACCA) Standard 4 prior to any treatments being applied to determine the baseline conditions and to develop QM treatment recommendations. Duct connections must not be sealed with duct tape (cloth-backed rubber adhesive tapes). Mastic or aerosol sealant materials are preferred, and butyl tape can be used where mastic or aerosol are impractical.

If some or all of the existing ductwork is beyond repair and more than 25 linear feet of ductwork must be replaced, the replaced ductwork must comply with applicable requirements of subsections i and ii in Section 150.2(b) of the 2022 California Building Energy Efficiency Standards (Title 24), or the replaced ductwork must be installed and tested in accordance with the applicable requirements in 2022 Title 24 Section 150.2(b)1D.

Important Notes

None

Economizer Repair, Commercial

https://www.caetrm.com/measure/SWSV005/04/

USE CATEGORY
SV - Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWSV005-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

This measure is defined as the restoration of economizer functionality through repairs or the replacement of an existing economizer control sensor. The economizer control sensor replacement offerings have been migrated to this measure package from the SWSV010 because the control sensor replacement scope required by the offerings better aligns with the economizer repair scopes outlined in this measure package.

Description	System Type	Statewide Measure Offering ID	Measure Offering Description
Economizer Repair	AC Only Unit	I	Economizer repair on unitary AC system
Economizer Repair	AC Unit with Gas Furnace	J	Economizer repair on unitary AC unit with gas furnace system
Economizer Repair	Heat Pump	K	Economizer repair on unitary heat pump system
Economizer Repair	Variable Volume AC Unit with Gas Furnace	L	Economizer repair on unitary variable volume AC unit with gas furnace
Economizer Sensor Replacement	AC Only Unit	M	Economizer sensor replacement on unitary AC system
Economizer Sensor Replacement	AC Unit with Gas Furnace	N	Economizer sensor replacement on unitary AC unit with gas furnace system
Economizer Sensor Replacement	Heat Pump	O	Economizer sensor replacement on unitary heat pump system
Economizer Sensor Replacement	Variable Volume AC Unit with Gas Furnace	P	Economizer sensor replacement on unitary variable volume AC unit with gas furnace

Base Case Description

The base case for the economizer repair offerings is an existing HVAC equipment with non-functional, either failed closed or partially open, economizer. Common as-found conditions in the field include broken or worn linkages, stuck dampers, inadequate wiring, inoperable damper actuators, or malfunctioning controllers.

The base case for the economizer sensor replacement offerings is an existing economizer equipped with an outdated snap disc thermostat, a malfunctioning sensor, or an uncalibrated sensor.

Description	System Type	Statewide Measure Offering ID	Existing Description	Standard Description
Economizer Repair	AC Only Unit	I	Existing HVAC equipment with non-functional economizer	Existing HVAC equipment with non-functional economizer
Economizer Repair	AC Unit with Gas Furnace	J	Existing HVAC equipment with non-functional economizer	Existing HVAC equipment with non-functional economizer
Economizer Repair	Heat Pump	K	Existing HVAC equipment with non-functional economizer	Existing HVAC equipment with non-functional economizer
Economizer Repair	Variable Volume AC Unit with Gas Furnace	L	Existing HVAC equipment with non-functional economizer	Existing HVAC equipment with non-functional economizer
Economizer Sensor Replacement	AC Only Unit	M	Existing economizer with an outdated snap disc thermostat, a malfunctioning sensor, or an uncalibrated sensor	Existing economizer with an outdated snap disc thermostat, a malfunctioning sensor, or an uncalibrated sensor
Economizer Sensor Replacement	AC Unit with Gas Furnace	N	Existing economizer with an outdated snap disc thermostat, a malfunctioning sensor, or an uncalibrated sensor	Existing economizer with an outdated snap disc thermostat, a malfunctioning sensor, or an uncalibrated sensor
Economizer Sensor Replacement	Heat Pump	O	Existing economizer with an outdated snap disc thermostat, a malfunctioning sensor, or an uncalibrated sensor	Existing economizer with an outdated snap disc thermostat, a malfunctioning sensor, or an uncalibrated sensor
Economizer Sensor Replacement	Variable Volume AC Unit with Gas Furnace	P	Existing economizer with an outdated snap disc thermostat, a malfunctioning sensor, or an uncalibrated sensor	Existing economizer with an outdated snap disc thermostat, a malfunctioning sensor, or an uncalibrated sensor

Applicable Parameters:

Parameters	Labels
Measure Application Type	BRO-RCx - BRO-Retrocommissioning
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	AgOth - Other Agricultural, Asm - Assembly, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC, DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	125.63	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	-1.31	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	73.50	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	3.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWSV_Summary.xlsx

Others:

Program Exclusions
This measure requires field documentation of the existing conditions that verify the measure was necessary and that the measure was successfully applied. The HVAC system must have an existing, malfunctioning, or non-functional economizer that could be repaired to a functional state. Requirements for the economizer repair offerings include: • The existing economizer must have broken or worn linkages, non-operational dampers, wiring issues, and malfunctioning controllers. • The economizer must be repaired to a fully functional state. • The HVAC systems that require controller upgrades to enable fully functioning economizer are still eligible under this measure but the costs for controller upgrades are not included as part of the measure cost. Requirements for the economizer sensor replacement offerings include: • The economizer must have either a snap disc thermostat, a malfunctioning analog sensor, or an uncalibrated sensor. The types of sensors include dry bulb temperature sensors for outside air temperature or return air temperature and humidity sensors. • HVAC systems that require multiple sensor replacements are eligible under this measure. In addition to the above requirements, both the measure offerings should also perform additional technician verification of thermostat wiring and the number of cooling stages to ensure that the first stage of cooling is dedicated to economizer operation and two-stage thermostat operation is enabled where possible. The controller changeover setpoint should be adjusted appropriately based on the available number of thermostat cooling stages. Although not required as part of this measure package, it is recommended that the economizer high limit should be optimized for the climate per Title 24 2025 Table 140.4-G. Economizer setpoint adjustment may be incentivized through the measure package SWSV010. This measure is applicable for nonresidential buildings served by unitary direct expansion (DX) and split systems that do not serve process or refrigeration loads. Only the following host packaged or split single zone HVAC system types are eligible: AC unit with a gas furnace (cDXGF), cooling only AC unit (cDXOH), heat pump (cDXHP), or variable volume AC unit with gas furnace (cPVVG). The following are ineligible: • The economizer control replacement measure does not apply if the packaged or split HVAC system has a fully operational economizer control sensor. • The economizer repair measure does not apply if the packaged or split HVAC system has a fully operational economizer. • HVAC systems that serve refrigeration or process loads • Storage - Unconditioned (SUn) and Warehouse - Refrigerated (WRf) since energy savings were not modeled.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Economizer Controls, Commercial

https://www.caetrm.com/measure/SWSV010/04/

USE CATEGORY
SV - Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWSV010-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The optimization of the existing economizer controls by adjusting the changeover setpoint.

The economizer control sensor replacement offerings have been migrated to the SWSV005 measure package because the control sensor replacement scope required by the offerings better aligns with the economizer repair scopes outlined in SWSV005.

Description	System Type	Statewide Measure Offering ID	Measure Offering Description
Economizer Control Adjustment	AC Only Unit	I	Economizer control adjustment on unitary AC system
Economizer Control Adjustment	AC Unit with Gas Furnace	J	Economizer control adjustment on unitary AC unit with gas furnace system
Economizer Control Adjustment	Heat Pump	K	Economizer control adjustment on unitary heat pump system
Economizer Control Adjustment	Variable Volume AC Unit with Gas Furnace	L	Economizer control adjustment on unitary variable volume AC unit with gas furnace

Base Case Description

An existing, fully operational economizer with un-optimized economizer controls, such as low economizer changeover setpoints.

Description	System Type	Statewide Measure Offering ID	Existing Description	Standard Description
Economizer Control Adjustment	AC Only Unit	I	Existing economizer with fully operating sensor but requires setpoint adjustment	Existing economizer with fully operating sensor but requires setpoint adjustment
Economizer Control Adjustment	AC Unit with Gas Furnace	J	Existing economizer with fully operating sensor but requires setpoint adjustment	Existing economizer with fully operating sensor but requires setpoint adjustment

Description	System Type	Statewide Measure Offering ID	Existing Description	Standard Description
Economizer Control Adjustment	Heat Pump	K	Existing economizer with fully operating sensor but requires setpoint adjustment	Existing economizer with fully operating sensor but requires setpoint adjustment
Economizer Control Adjustment	Variable Volume AC Unit with Gas Furnace	L	Existing economizer with fully operating sensor but requires setpoint adjustment	Existing economizer with fully operating sensor but requires setpoint adjustment

Applicable Parameters:

Parameters	Labels
Measure Application Type	BRO-RCx - BRO-Retrocommissioning
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	AgOth - Other Agricultural, Asm - Assembly, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-Tons - ton of cooling capacity
Electric Impact Profile ID	DEER:HVAC_Split-Package_AC, DEER:HVAC_Split-Package_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	140.47	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	31.09	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	3.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWSV_Summary.xlsx

Others:

Program Exclusions
Contractors and technicians implementing the measure must meet all certification and training requirements. Requirements for the economizer control adjustment offerings include: • Economizer must be fully operational with an un-optimized analog sensor or controls that require adjustment, such as modifying the changeover setpoint. • Economizer repairs should be completed before this measure so that the existing economizer is fully functional. If needed, some economizer repair scopes may be eligible under SWSV005. • Additional technician verification of thermostat wiring and the number of cooling stages should be performed to ensure that the first stage of cooling is dedicated to economizer operation and two-stage thermostat operation is enabled where possible. • The controller changeover setpoint should be adjusted appropriately based on the available number of thermostat cooling stages. • The economizer high limit should be optimized for each climate zone as per Title 24 2025 Table 140.4-G. HVAC systems that serve refrigeration or process loads are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
This measure requires field documentation of the existing conditions that verify the measure was necessary and that the measure was successfully applied. There must be an existing economizer on the applicable HVAC system.
Important Notes
Storage - Unconditioned (SUn) and Warehouse - Refrigerated (WRf) were not modeled and do not have savings reported.

Duct Optimization, Residential

https://www.caetrm.com/measure/SWSV013/05/

USE CATEGORY
SV - Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWSV013-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The measure case is defined as duct optimization to reduce total leakage from a high leakage rate to a low leakage rate.

Measure Case Description	Statewide Measure Offering ID	Measure Offering Description
Crossover duct replacement	F	Crossover duct replacement (total leakage reduction 35% to 15%)
Return duct retrofit	E	Return duct retrofit (total leakage reduction 50% to 15%)

Base Case Description

An existing crossover duct or open cavity return duct with the specified leakage rate.

Measure Case Description	Statewide Measure Offering ID	Existing Description	Standard Description
Crossover duct replacement	F	Existing crossover duct (35% total leakage)	Existing crossover duct (35% total leakage)
Return duct retrofit	E	Existing open cavity return (50% total leakage)	Existing open cavity return (50% total leakage)

Applicable Parameters:

Parameters	Labels
Measure Application Type	BW - Building Weatherization
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer
Normalized Unit	Area-ft2-BA - square feet of Building area
Electric Impact Profile ID	DEER:HVAC_Eff_AC
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.35	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	0.02	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	1.03	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	18.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWSV_Summary.xlsx

Others:

Program Exclusions
When installing these measures, technicians must abide by all applicable codes. Duct leakage tests titled “Duct Pressurization and Leakage Flow Measurement” and “Duct Leakage to Outside Measurement” are the only two eligible duct leakage tests referenced in California Building Energy Efficiency Standards (Title 24) Reference Appendix 3, which are the same standards referenced in ANSI/ RESNET/ICC Standard 380-2019. However, only one type of duct leakage test is required to justify duct leakage for the following two offerings: Return Duct Retrofit • Shall be installed by a residential HVAC contractor in a mobile home with an existing open belly return with a supply system in the ceiling. The open belly return is a non-ducted return air system with high leakage. Mobile homes with a ducted return are not eligible for this measure. • Installed return ducts shall be made from either galvanized steel, tinplated steel, or aluminum, or shall be listed as Class 0 or Class 1 air ducts under Underwriters' Laboratories, Inc. Standard for Air Ducts, UL181-2013. This measure requires a hard metal ducted return installed directly at the return air plenum. • Return ducts in unconditioned spaces shall be insulated with material having an effective thermal resistance (R-value) of not less than 8.0. • Testing: Belly return systems must be verified by a pre and post total leakage duct test at 25 pascals on the return side of the duct system only. This shall be achieved by separating the supply from return side of the duct system by sealing at the air handler/furnace, typically at the filter slot to eliminate supply side leakage from the test. Crossover Duct Replacement • Shall be installed by a residential HVAC contractor in a double-wide mobile home where two or more sections of the home has been joined. The crossover duct connects the supply ducting of two or more sections. The existing ducting must be deteriorated, damaged, or not installed correctly to be eligible for this measure. • Crossover ducts shall be made from galvanized steel, tinplated steel, or aluminum. • The crossover duct shall be supported and or prevented from ground contact. • If located in interior areas, not exposed to outdoor air, crossover ducts shall be insulated with material having an effective thermal resistance (R) of not less than 4.0. If the crossover duct is installed in an area that is exposed to outdoor air, such as outside the building’s envelope, the ducts shall be insulated with material having effective thermal resistance (R) of not less than 8.0. • Testing: Crossover duct replacement leakage reduction must be verified by a total leakage test pre and post replacement in accordance with current RESNET standards by a qualified technician. Crossover replacement is done in conjunction with duct sealing covered in the statewide measure SWSV001. Mobile homes with existing duct leakage reduction less than 20% are not eligible. The final duct leakage rate cannot be more than 17%.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Lifecycle Refrigerant Management, Residential

https://www.caetrm.com/measure/SWSV014/05/

USE CATEGORY
SV - Service

EFFECTIVE START DATE
1/1/2026

VERSION
SWSV014-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The lifecycle refrigerant management (LRM) provides: (1) Training on refrigerant responsibility and stewardship for recovery, reclamation, and reuse. (2) For new installations, low- and high-pressure leak testing; and evacuating to less than (<) 500 microns using ¾" diameter engineered hoses to remove moisture and non-condensable. (3) Electronic refrigerant leak detection, repair, and prevention. (4) Tightening Schrader core valves to 5 inch-pounds (in-lbs) per manufacturer specifications and installing Nylog blue sealant and Locking Schrader caps (LSC) to prevent 5.3% leakage due venting and refrigerant huffing. (5) Non-invasive temperature diagnostic (NTD) software. (6) Adding at least 7.5% or more refrigerant charge when needed to undercharged units or units with airflow from 200 to 350 cfm/ton. Offerings are characterized by the HVAC unit, the measure application type, the refrigerant type, and the amount of refrigerant charge adjustment (RCA).

BldgHVAC	Installation	Refrigerant	Statewide Measure Offering ID	Measure Offering Description
rDXGF	LRM AOE +15% RCA LSC	R22	P	LRM AOE +15% RCA LSC R22 rDXGF
rDXGF	LRM AOE +15% RCA LSC	R410a	Q	LRM AOE +15% RCA LSC R410a rDXGF
rDXGF	LRM AOE +22.5% RCA LSC	R22	T	LRM AOE +22.5% RCA LSC R22 rDXGF
rDXGF	LRM AOE +22.5% RCA LSC	R410a	U	LRM AOE +22.5% RCA LSC R410a rDXGF
rDXGF	LRM AOE +30% RCA LSC	R22	X	LRM AOE +30% RCA LSC R22 rDXGF
rDXGF	LRM AOE +30% RCA LSC	R410a	Y	LRM AOE +30% RCA LSC R410a rDXGF
rDXGF	LRM AOE +40% RCA LSC	R22	AB	LRM AOE +40% RCA LSC R22 rDXGF
rDXGF	LRM AOE +40% RCA LSC	R410a	AC	LRM AOE +40% RCA LSC R410a rDXGF
rDXGF	LRM AOE +7.5% RCA LSC	R22	A	LRM AOE +7.5% RCA LSC R22 rDXGF
rDXGF	LRM AOE +7.5% RCA LSC	R410a	B	LRM AOE +7.5% RCA LSC R410a rDXGF
rDXGF	LRM AOE LSC	R22	C	LRM AOE LSC R22 rDXGF
rDXGF	LRM AOE LSC	R410a	D	LRM AOE LSC R410a rDXGF
rDXGF	LRM NR LSC	R454b	M	LRM NR LSC R454b rDXGF
rDXHP	LRM AOE +15% RCA LSC	R22	R	LRM AOE +15% RCA LSC R22 rDXHP
rDXHP	LRM AOE +15% RCA LSC	R410a	S	LRM AOE +15% RCA LSC R410a rDXHP
rDXHP	LRM AOE +22.5% RCA LSC	R22	V	LRM AOE +22.5% RCA LSC R22 rDXHP
rDXHP	LRM AOE +22.5% RCA LSC	R410a	W	LRM AOE +22.5% RCA LSC R410a rDXHP
rDXHP	LRM AOE +30% RCA LSC	R22	Z	LRM AOE +30% RCA LSC R22 rDXHP

BldgHVAC	Installation	Refrigerant	Statewide Measure Offering ID	Measure Offering Description
rDXHP	LRM AOE +30% RCA LSC	R410a	AA	LRM AOE +30% RCA LSC R410a rDXHP
rDXHP	LRM AOE +40% RCA LSC	R22	AD	LRM AOE +40% RCA LSC R22 rDXHP
rDXHP	LRM AOE +40% RCA LSC	R410a	AE	LRM AOE +40% RCA LSC R410a rDXHP
rDXHP	LRM AOE +7.5% RCA LSC	R22	G	LRM AOE +7.5% RCA LSC R22 rDXHP
rDXHP	LRM AOE +7.5% RCA LSC	R410a	H	LRM AOE +7.5% RCA LSC R410a rDXHP
rDXHP	LRM AOE LSC	R22	I	LRM AOE LSC R22 rDXHP
rDXHP	LRM AOE LSC	R410a	J	LRM AOE LSC R410a rDXHP
rDXHP	LRM NC LSC	R32	AG	LRM NC LSC R32 rDXHP
rDXHP	LRM NC LSC	R454b	O	LRM NC LSC R454b rDXHP
rDXHP	LRM NR LSC	R32	AF	LRM NR LSC R32 rDXHP
rDXHP	LRM NR LSC	R454b	N	LRM NR LSC R454b rDXHP

Base Case Description

The base case is defined as a non-treated AC or HP system.

BldgHVAC	Installation	Refrigerant	Statewide Measure Offering ID	Existing Description	Standard Description
rDXGF	LRM AOE +15% RCA LSC	R22	P	No LRM R22 rDXGF	No LRM R22 rDXGF
rDXGF	LRM AOE +15% RCA LSC	R410a	Q	No LRM R410a rDXGF	No LRM R410a rDXGF
rDXGF	LRM AOE +22.5% RCA LSC	R22	T	No LRM R22 rDXGF	No LRM R22 rDXGF
rDXGF	LRM AOE +22.5% RCA LSC	R410a	U	No LRM R410a rDXGF	No LRM R410a rDXGF
rDXGF	LRM AOE +30% RCA LSC	R22	X	No LRM R22 rDXGF	No LRM R22 rDXGF
rDXGF	LRM AOE +30% RCA LSC	R410a	Y	No LRM R410a rDXGF	No LRM R410a rDXGF
rDXGF	LRM AOE +40% RCA LSC	R22	AB	No LRM R22 rDXGF	No LRM R22 rDXGF
rDXGF	LRM AOE +40% RCA LSC	R410a	AC	No LRM R410a rDXGF	No LRM R410a rDXGF
rDXGF	LRM AOE +7.5% RCA LSC	R22	A	No LRM R22 rDXGF	No LRM R22 rDXGF
rDXGF	LRM AOE +7.5% RCA LSC	R410a	B	No LRM R410a rDXGF	No LRM R410a rDXGF
rDXGF	LRM AOE LSC	R22	C	No LRM R22 rDXGF	No LRM R22 rDXGF
rDXGF	LRM AOE LSC	R410a	D	No LRM R410a rDXGF	No LRM R410a rDXGF
rDXGF	LRM NR LSC	R454b	M	No LRM R454b rDXGF	No LRM R454b rDXGF
rDXHP	LRM AOE +15% RCA LSC	R22	R	No LRM R22 rDXHP	No LRM R22 rDXHP
rDXHP	LRM AOE +15% RCA LSC	R410a	S	No LRM R410a rDXHP	No LRM R410a rDXHP
rDXHP	LRM AOE +22.5% RCA LSC	R22	V	No LRM R22 rDXHP	No LRM R22 rDXHP
rDXHP	LRM AOE +22.5% RCA LSC	R410a	W	No LRM R410a rDXHP	No LRM R410a rDXHP
rDXHP	LRM AOE +30% RCA LSC	R22	Z	No LRM R22 rDXHP	No LRM R22 rDXHP
rDXHP	LRM AOE +30% RCA LSC	R410a	AA	No LRM R410a rDXHP	No LRM R410a rDXHP
rDXHP	LRM AOE +40% RCA LSC	R22	AD	No LRM R22 rDXHP	No LRM R22 rDXHP
rDXHP	LRM AOE +40% RCA LSC	R410a	AE	No LRM R410a rDXHP	No LRM R410a rDXHP
rDXHP	LRM AOE +7.5% RCA LSC	R22	G	No LRM R22 rDXHP	No LRM R22 rDXHP
rDXHP	LRM AOE +7.5% RCA LSC	R410a	H	No LRM R410a rDXHP	No LRM R410a rDXHP
rDXHP	LRM AOE LSC	R22	I	No LRM R22 rDXHP	No LRM R22 rDXHP
rDXHP	LRM AOE LSC	R410a	J	No LRM R410a rDXHP	No LRM R410a rDXHP
rDXHP	LRM NC LSC	R32	AG	No LRM R32 rDXHP	No LRM R32 rDXHP
rDXHP	LRM NC LSC	R454b	N	No LRM R454b rDXHP	No LRM R454b rDXHP
rDXHP	LRM NR LSC	R32	AF	No LRM R32 rDXHP	No LRM R32 rDXHP
rDXHP	LRM NR LSC	R454b	O	No LRM R454b rDXHP	No LRM R454b rDXHP

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Area-ft2-BA - square feet of Building area
Electric Impact Profile ID	DEER:HVAC_Eff_AC, DEER:HVAC_Eff_HP
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	0.72	Link
Standard - Electric Savings (kWh/yr)	0.17	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	0.36	Link
Base Case Costs ($)	0.00	
Incremental Cost ($)	0.36	
Effective Useful Life (years)	23.00	Link
Remaining Useful Life (years)	7.67	

Streamlined Permutations: SWSV_Summary.xlsx

Others:

Program Exclusions
The following eligibility requirements must be met, in accordance with the Lifecycle Refrigerant Management Training Manual, before the LRM measure is implemented. • Refrigerant leak detection must be performed using an electronic leak detector. If there is refrigerant leak, repair and preventive measures are required. • Qualified EPA-certified technicians must use refrigerant hoses with EPA-approved low-loss fittings. Technicians are not allowed to connect to high pressure Schrader valves and must adhere to "De minimis" quantities of refrigerant released while making good faith attempts to recapture and recycle or safely dispose of refrigerant including releases that occur when connecting or disconnecting hoses per US EPA regulations (40 CFR Part 82, Subpart F) under Section 608 of the Clean Air Act. • Clean air filters must be installed. Condensing and evaporator (if possible) coils must be cleaned per manufacturer specifications to ensure correct diagnostic measurements. • Non-invasive temperature diagnostics (NTD) software must be used to evaluate airflow and refrigerant charge. • NTD software must be capable of accurately identifying faults (e.g., undercharged/overcharged amount, heat exchanger faults, refrigerant restrictions, and non-condensable) only based on temperature measurements and without connecting refrigerant pressure gauges. • Refrigerant charge measures are only allowed if system is undercharged by ≥7.5% and airflow ≥200 cfm/ton. 200 to 350 cfm/ton airflow is allowed if preventing ice formation on the evaporator coil. Program exclusions include: AC or heat pump system not operating due to compressor, fan motor, reversing valve, expansion valve, or electrical system failure, significant non-condensable, significant restrictions, and significant unrepairable refrigerant leaks.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

All-Electric Homes, Residential, New Construction

https://www.caetrm.com/measure/SWWB008/04/

USE CATEGORY
WB - Whole Building

EFFECTIVE START DATE
1/1/2025

VERSION
SWWB008-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An all-electric home with electric HVAC, domestic hot water, cooking, and clothes dryer equipment. All of building systems in the all-electric home must be powered by electricity, but individual system eligibility is determined separately and depends on specific minimum eligible efficiencies for each system type.

Base Case Description

A mixed fuel home with some of its end uses being served by natural gas equipment.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction
Sector	Res - Residential
Building Type	MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	New - New Construction
Building Location	All climate zones
Delivery Type	DnDeemed - Downstream deemed
Normalized Unit	Area-ft2-BA - square feet of Building area, Each - installation of technology
Electric Impact Profile ID	DEER:HVAC_Eff_HP, DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	-0.01	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-94.67	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	17.34	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	1,094.20	Link
Base Case Costs ($)	707.74	
Incremental Cost ($)	386.47	
Effective Useful Life (years)	20.42	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWWB_Summary.xlsx

Others:

Program Exclusions
Measure case and base case must meet or exceed the product and system requirements specified in the Offering ID table. The requirements are adopted mainly from analogous fuel substitution measure packages. Cooking Appliances: • Equipment must have 4 to 5 heating elements • Efficiency verification isn't needed as induction are assumed to be more efficient than standard technologies. Heat Pump Clothes Dryer: • Measure case mut meet ENERGY STAR V1.1 specification or newer • Measure case must meet or exceed the minimum combined efficiency factor (CEF) of 4.50. Storage Heat Pump Water Heater: • Only storage heat pump water heaters serving individual dwelling units are. Central storage water heaters that serve more than one dwelling unit or common areas are not eligible. Ductless Heat Pump HVAC Systems: • Measure case must be a ductless split heat pump system. Both mini-split or multi-split systems are eligible. • Equipment may not be installed in the same home as central heat pump HVAC system measures. Central Heat Pump HVAC System: • Measure case must be a split-system central or central packaged heat pump. • Equipment may not be installed in the same home as the ductless heat pump HVAC system measures.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the requirements in the Offering ID table.
Important Notes
None

Faucet Aerator, Residential

https://www.caetrm.com/measure/SWWH001/05/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH001-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A low-flow faucet aerator or the installation of a flow control valve (FCV) on a lavatory or kitchen faucet. Offerings are characterized by the equipment type, installed location, water heater type and fuel (heat pump, electric resistance, or natural gas), flow rate in gallons per minute (gpm), and measure application type.

Base Case Description

The existing base case is an existing residential lavatory faucet or kitchen faucet without an aerator or FCV, with a flow rate of 2.2 gpm. The standard base case is a kitchen faucet with a flow rate of 1.8 gpm or a lavatory faucet with a flow rate of 1.2 gpm.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, AR - Accelerated Replacement
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.01	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	46.19	Link
Standard - Electric Savings (kWh/yr)	14.20	
Existing - Gas Savings (therm/yr)	1.41	Link
Standard - Gas Savings (therm/yr)	0.43	
Existing - Water Savings (gal/yr)	892.69	Link
Standard - Water Savings (gal/yr)	274.31	
Measure Case Costs ($)	24.74	Link
Base Case Costs ($)	11.81	
Incremental Cost ($)	4.13	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	5.55	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
The existing faucet must have a flow rate of at least 2.2 gpm. The low-flow faucet aerator and flow control valve FCV must meet the measure case maximum flow rate. For accelerated replacement application types, the retrofit faucet must have an existing faucet aerator. For all other application types, the faucet must not have an aerator installed. The FCV is only applicable to add-one equipment (AOE) measure application type. The measure is not applicable to new faucets that meet or exceed the 2021 California Appliance Efficiency Regulations (Title 20) code requirement of 1.2 gpm flow rate for lavatory faucet and 1.8 gpm flow rate for kitchen faucet.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Low-Flow Showerhead, Residential

https://www.caetrm.com/measure/SWWH002/06/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH002-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An efficient showerhead or the installation of a flow control valve (FCV) that meets the specified flow rate. Offerings are characterized by the water heater type (heat pump, electric resistance, or natural gas), flow rate in gallons per minute (gpm), and measure application type.

Base Case Description

The existing base case is a showerhead with a flow rate of 2.25 gpm. The standard base case is a low-flow showerhead that meets 2021 Title 20 maximum flow rate requirements of 1.8 gpm.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.01	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	105.92	Link
Standard - Electric Savings (kWh/yr)	51.31	
Existing - Gas Savings (therm/yr)	3.23	Link
Standard - Gas Savings (therm/yr)	1.20	
Existing - Water Savings (gal/yr)	2,046.51	Link
Standard - Water Savings (gal/yr)	951.90	
Measure Case Costs ($)	47.90	Link
Base Case Costs ($)	47.02	
Incremental Cost ($)	4.05	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	8.09	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
The low-flow showerhead must meet the U.S. Environmental Protection Agency (EPA) *WaterSense Specification for Showerheads* to ensure it meets the EPA criteria for water efficiency and performance. Flow control valve (FCV) is only applicable to add-on equipment (AOE) measure application type. FCVs, while included in this measure, are not eligible for WaterSense certification as standalone products. Only products explicitly covered by WaterSense specifications may carry the label.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

TSV with and without an Integrated Low-Flow Showerhead, Residential

https://www.caetrm.com/measure/SWWH003/05/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH003-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a thermostatic shower valve (TSV) with or without a low-flow showerhead. Offerings are characterized by the equipment type, water heater type and fuel (heat pump, electric resistance, or natural gas), flow rate in gallons per minute (gpm), and measure application type.

Base Case Description

The existing base case is a showerhead with no flow restriction valve installed and a flow rate of 2.25 gpm. The standard base case is a low-flow showerhead that meets 2021 Title 20 maximum flow rate requirements of 1.8 gpm.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.01	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	93.93	Link
Standard - Electric Savings (kWh/yr)	71.58	
Existing - Gas Savings (therm/yr)	2.87	Link
Standard - Gas Savings (therm/yr)	1.67	
Existing - Water Savings (gal/yr)	1,814.93	Link
Standard - Water Savings (gal/yr)	1,328.24	
Measure Case Costs ($)	61.99	Link
Base Case Costs ($)	47.02	
Incremental Cost ($)	16.00	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	5.53	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Thermostatic shower valve (TSV) without a low-flow showerhead is only applicable to add-on equipment (AOE) measure application type. Any TSV certified by applicable standards (e.g., ANSI, ASPE, etc.) is eligible. Low-flow showerhead: The product must meet the U.S. Environmental Protection Agency (EPA) *WaterSense Specification for Showerheads* to ensure it meets the EPA's criteria for water efficiency and performance. Due to Title 24 prescriptive requirements for domestic hot water systems, this measure is not eligible for new construction applications involving gas or electric resistance water heating in single-family and multifamily buildings.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Laminar Flow Restrictor, Commercial

https://www.caetrm.com/measure/SWWH004/04/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH004-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a laminar flow restrictor (LFR), also known as a laminar flow device (LFD), is at the outlet of a faucet spout in a health care facility to reduce the flow rate.

Fuel Type	Water Heater Type	System Location	Flow Rate	Statewide Measure Offering ID	Measure Offering Description
Electric	HPWH	Kitchen LFD	1.5 gpm	Q	Faucet, kitchen LFD, 1.5 gpm, HPWH
Electric	HPWH	Kitchen LFD	1.8 gpm	P	Faucet, kitchen LFD, 1.8 gpm, HPWH
Electric	HPWH	Kitchen/Lav. LFD	0.5 gpm	T	Faucet, public or private lavatory or kitchen LFD, 0.5 gpm, HPWH
Electric	HPWH	Kitchen/Lav. LFD	1.0 gpm	S	Faucet, public or private lavatory or kitchen LFD, 1.0 gpm, HPWH
Electric	HPWH	Kitchen/Lav. LFD	1.2 gpm	R	Faucet, public or private lavatory or kitchen LFD, 1.2 gpm, HPWH
Electric	Resistance	Kitchen LFD	1.5 gpm	L	Faucet, kitchen LFD, 1.5 gpm, Resistance
Electric	Resistance	Kitchen LFD	1.8 gpm	K	Faucet, kitchen LFD, 1.8 gpm, Resistance
Electric	Resistance	Kitchen/Lav. LFD	0.5 gpm	O	Faucet, public or private lavatory or kitchen LFD, 0.5 gpm, Resistance
Electric	Resistance	Kitchen/Lav. LFD	1.0 gpm	N	Faucet, public or private lavatory or kitchen LFD, 1.0 gpm, Resistance
Electric	Resistance	Kitchen/Lav. LFD	1.2 gpm	M	Faucet, public or private lavatory or kitchen LFD, 1.2 gpm, Resistance
Gas	Gas	Kitchen LFD	1.5 gpm	B	Faucet, kitchen LFD, 1.5 gpm, Gas
Gas	Gas	Kitchen LFD	1.8 gpm	A	Faucet, kitchen LFD, 1.8 gpm, Gas
Gas	Gas	Kitchen/Lav. LFD	0.5 gpm	E	Faucet, public or private lavatory or kitchen LFD, 0.5 gpm, Gas
Gas	Gas	Kitchen/Lav. LFD	1.0 gpm	D	Faucet, public or private lavatory or kitchen LFD, 1.0 gpm, Gas
Gas	Gas	Kitchen/Lav. LFD	1.2 gpm	C	Faucet, public or private lavatory or kitchen LFD, 1.2 gpm, Gas

Base Case Description

An existing faucet spout with a flow rate of 2.7 gpm without a flow restriction device.

Fuel Type	Water Heater Type	System Location	Flow Rate	Statewide Measure Offering ID	Existing Description	Standard Description
Electric	HPWH	Kitchen LFD	1.5 gpm	Q	Faucet, no LFD, 2.7 gpm, HPWH	Faucet, no LFD, 2.7 gpm, HPWH
Electric	HPWH	Kitchen LFD	1.8 gpm	P	Faucet, no LFD, 2.7 gpm, HPWH	Faucet, no LFD, 2.7 gpm, HPWH
Electric	HPWH	Kitchen/Lav. LFD	0.5 gpm	T	Faucet, no LFD, 2.7 gpm, HPWH	Faucet, no LFD, 2.7 gpm, HPWH
Electric	HPWH	Kitchen/Lav. LFD	1.0 gpm	S	Faucet, no LFD, 2.7 gpm, HPWH	Faucet, no LFD, 2.7 gpm, HPWH
Electric	HPWH	Kitchen/Lav. LFD	1.2 gpm	R	Faucet, no LFD, 2.7 gpm, HPWH	Faucet, no LFD, 2.7 gpm, HPWH
Electric	Resistance	Kitchen LFD	1.5 gpm	L	Faucet, no LFD, 2.7 gpm, Resistance	Faucet, no LFD, 2.7 gpm, Resistance
Electric	Resistance	Kitchen LFD	1.8 gpm	K	Faucet, no LFD, 2.7 gpm, Resistance	Faucet, no LFD, 2.7 gpm, Resistance
Electric	Resistance	Kitchen/Lav. LFD	0.5 gpm	O	Faucet, no LFD, 2.7 gpm, Resistance	Faucet, no LFD, 2.7 gpm, Resistance
Electric	Resistance	Kitchen/Lav. LFD	1.0 gpm	N	Faucet, no LFD, 2.7 gpm, Resistance	Faucet, no LFD, 2.7 gpm, Resistance
Electric	Resistance	Kitchen/Lav. LFD	1.2 gpm	M	Faucet, no LFD, 2.7 gpm, Resistance	Faucet, no LFD, 2.7 gpm, Resistance
Gas	Gas	Kitchen LFD	1.5 gpm	B	Faucet, no LFD, 2.7 gpm, Gas	Faucet, no LFD, 2.7 gpm, Gas
Gas	Gas	Kitchen LFD	1.8 gpm	A	Faucet, no LFD, 2.7 gpm, Gas	Faucet, no LFD, 2.7 gpm, Gas
Gas	Gas	Kitchen/Lav. LFD	0.5 gpm	E	Faucet, no LFD, 2.7 gpm, Gas	Faucet, no LFD, 2.7 gpm, Gas
Gas	Gas	Kitchen/Lav. LFD	1.0 gpm	D	Faucet, no LFD, 2.7 gpm, Gas	Faucet, no LFD, 2.7 gpm, Gas
Gas	Gas	Kitchen/Lav. LFD	1.2 gpm	C	Faucet, no LFD, 2.7 gpm, Gas	Faucet, no LFD, 2.7 gpm, Gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial
Building Type	Cnc - Health/Medical - Clinics, Hsp - Health/Medical - Hospital, Nrs - Health/Medical - Nursing Home
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	191.31	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	5.42	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	3,696.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	34.60	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	6.67	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
The device must be installed only in health care facilities that are subject to the Office of Statewide Health Planning and Development (OSHPD) code and regulation/inspection requirements. The device must meet the OSHPD code and regulation. The LFR must be labeled as “Vandal Proof” or must not be removable without a proprietary tool, except for dialysis and scrub sink locations.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Boiler, Commercial

https://www.caetrm.com/measure/SWWH005/07/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH005-07

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An efficient instantaneous water heater or a commercial hot water boiler meeting the uniform energy factor (UEF) requirement for rated input <200 kBtu/hr and the thermal efficiency (TE) requirement for rated input ≥300 kBtu/hr.

Capacity	Measure Case Efficiency	Statewide Measure Offering ID	Measure Offering Description
< 200 kBtu/hr	0.87 UEF	B	Small/medium DHW boiler, < 200 kBtu/hr, 0.87 UEF
< 200 kBtu/hr	0.92 UEF	F	Small/medium DHW boiler, < 200 kBtu/hr, 0.92 UEF
< 200 kBtu/hr	0.96 UEF	G	Small/medium DHW boiler, < 200 kBtu/hr, 0.96 UEF
>= 300 kBtu/hr	90% TE	H	Large DHW boiler, >= 300 kBtu/hr, 90% TE
>= 300 kBtu/hr	96% TE	I	Large DHW boiler, >= 300 kBtu/hr, 96% TE

Base Case Description

The existing and standard base case is an instantaneous water heater or a commercial hot water boiler, in each capacity category, meeting the efficiency specified below, which is consistent with federal, Title 20, and Title 24 regulations.

Capacity	Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
< 200 kBtu/hr	0.87 UEF	B	Small/medium DHW boiler, < 200 kBtu/hr - high draw, 0.81 UEF	Small/medium DHW boiler, < 200 kBtu/hr - high draw, 0.81 UEF
< 200 kBtu/hr	0.92 UEF	F	Small/medium DHW boiler, < 200 kBtu/hr - high draw, 0.81 UEF	Small/medium DHW boiler, < 200 kBtu/hr - high draw, 0.81 UEF
< 200 kBtu/hr	0.96 UEF	G	Small/medium DHW boiler, < 200 kBtu/hr - high draw, 0.81 UEF	Small/medium DHW boiler, < 200 kBtu/hr - high draw, 0.81 UEF
>= 300 kBtu/hr	90% TE	H	Large DHW boiler, >= 300 kBtu/hr, 78% TE	Large DHW boiler, >= 300 kBtu/hr, 84% TE
>= 300 kBtu/hr	96% TE	I	Large DHW boiler, >= 300 kBtu/hr, 78% TE	Large DHW boiler, HW, >= 300 kBtu/hr, 84% TE

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUD - University Dormitory, EUn - Education - University, Gro - Grocery, HGR - Hotel Guest Room, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-0.08	Link
Standard - Electric Savings (kWh/yr)	0.02	
Existing - Gas Savings (therm/yr)	3.85	Link
Standard - Gas Savings (therm/yr)	2.25	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	19.84	Link
Base Case Costs ($)	11.68	
Incremental Cost ($)	8.15	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	6.67	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Boilers must meet the following eligibility requirements: • Meet minimum qualifying efficiency ratings and comply with emission limits per air district, if applicable. Note that higher efficiency boilers are often condensing and may require flue modifications to handle the condensate. • Meet the definition of a tankless water heater, as defined by the California Energy Commission: • Be used primarily for domestic hot water   • Provide hot water only when there is a hot water draw from the end use.   • Have an input rating of at least 4,000 Btu/hr/gal of stored water. This measure does not include water heaters or hot water boilers used for space conditioning, industrial (process) end-use applications, pools, or spas.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
None

Tankless Water Heater, Commercial

https://www.caetrm.com/measure/SWWH006/08/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH006-08

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A natural gas tankless water heater, in each capacity category and meeting the specified uniform (U) energy factor (EF) requirement for rated input <200 kBtu/hr and the thermal efficiency (TE) requirement for rated input ≥200 kBtu/hr, replacing a storage water heater.

Capacity	Measure Case Efficiency	Statewide Measure Offering ID	Measure Offering Description
< 200 kBtu/hr	0.81 UEF	A	Small instant water heater, < 200 kBtu/hr, 0.81 UEF
< 200 kBtu/hr	0.87 UEF	B	Small instant water heater, < 200 kBtu/hr, 0.87 UEF
< 200 kBtu/hr	0.92 UEF	G	Small instant water heater, < 200 kBtu/hr, 0.92 UEF
< 200 kBtu/hr	0.96 UEF	H	Small instant water heater, < 200 kBtu/hr, 0.96 UEF
< 200 kBtu/hr	84% TE	I	Small/medium instant water heater, < 200 kBtu/hr, 84% TE
< 200 kBtu/hr	90% TE	E	Small/medium instant water heater, < 200 kBtu/hr, 90% TE
< 200 kBtu/hr	96% TE	J	Small/medium instant water heater, < 200 kBtu/hr, 96% TE
>= 200 kBtu/hr	84% TE	K	Large instant water heater, >= 200 kBtu/hr, 84% TE
>= 200 kBtu/hr	90% TE	D	Large instant water heater, >= 200 kBtu/hr, 90% TE
>= 200 kBtu/hr	96% TE	F	Large instant water heater, >= 200 kBtu/hr, 96% TE

Base Case Description

A natural gas storage water heater that meets the efficiency ratings specified below, which is consistent with federal, Title 20, and Title 24 regulations.

Capacity	Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
< 200 kBtu/hr	0.81 UEF	A	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.58 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF
< 200 kBtu/hr	0.87 UEF	B	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.58 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF
< 200 kBtu/hr	0.92 UEF	G	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.58 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF

Capacity	Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
< 200 kBtu/hr	0.96 UEF	H	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.58 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF
< 200 kBtu/hr	84% TE	I	Large storage water heater, > 75 kBtu/hr, 78% TE	Large storage water heater, > 75 kBtu/hr, 80% TE
< 200 kBtu/hr	90% TE	E	Large storage water heater, > 75 kBtu/hr, 78% TE	Large storage water heater, > 75 kBtu/hr, 80% TE
< 200 kBtu/hr	96% TE	J	Large storage water heater, > 75 kBtu/hr, 78% TE	Large storage water heater, > 75 kBtu/hr, 80% TE
>= 200 kBtu/hr	84% TE	K	Large storage water heater, > 75 kBtu/hr, 78% TE	Large storage water heater, > 75 kBtu/hr, 80% TE
>= 200 kBtu/hr	90% TE	D	Large storage water heater, > 75 kBtu/hr, 78% TE	Large storage water heater, > 75 kBtu/hr, 80% TE
>= 200 kBtu/hr	96% TE	F	Large storage water heater, > 75 kBtu/hr, 78% TE	Large storage water heater, > 75 kBtu/hr, 80% TE

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUD - University Dormitory, EUn - Education - University, Gro - Grocery, HGR - Hotel Guest Room, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.00	Link
Standard - Peak Demand Reduction (kW)	-0.00	
Existing - Electric Savings (kWh/yr)	-0.39	Link
Standard - Electric Savings (kWh/yr)	-0.38	
Existing - Gas Savings (therm/yr)	4.38	Link
Standard - Gas Savings (therm/yr)	4.01	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	16.18	Link
Base Case Costs ($)	8.40	
Incremental Cost ($)	7.79	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Eligible commercial tankless water heaters must meet the following requirements: • Meet or exceed the minimum qualifying efficiency ratings and comply with emission limits per air district, if applicable. Note that higher efficiency water heaters are often condensing and may require flue modifications to handle the condensate. • Meet the definition of a tankless water heater, as defined by the California Energy Commission: • Be used primarily for domestic hot water   • Provide hot water only when there is a hot water draw from the end use.   • Have an input rating of at least 4,000 Btu/hr/gal of stored water. This measure does not include water heaters or hot water boilers used for space conditioning, industrial (process) end-use applications, pools, or spas.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
Since it is considered industry standard practice to purchase a storage water heater for a residential application, offering A is listed at code.

Storage Water Heater, Commercial

https://www.caetrm.com/measure/SWWH007/06/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH007-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An energy efficient natural gas storage water heater, in each capacity category and meeting the specified uniform (U) energy factor (EF) and thermal efficiency (TE) requirement replacing a standard efficiency gas storage water heater.

System Size	Measure Case Efficiency	Statewide Measure Offering ID	Measure Offering Description
> 75 kBtu/hr	90% TE	H	Large storage water heater, > 75 kBtu/hr, 90% TE
> 75 kBtu/hr	96% TE	I	Large storage water heater, > 75 kBtu/hr, 96% TE
30 gal	0.64 UEF	B	Small storage water heater, <= 75 kBtu/hr, 30 gal, med. draw, 0.64 UEF
30 gal	0.68 UEF	A	Small storage water heater, <= 75 kBtu/hr, 30 gal, high draw, 0.68 UEF
40 gal	0.64 UEF	D	Small storage water heater, <= 75 kBtu/hr, 40 gal, med. draw, 0.64 UEF
40 gal	0.68 UEF	C	Small storage water heater, <= 75 kBtu/hr, 40 gal, high draw, 0.68 UEF
50 gal	0.64 UEF	F	Small storage water heater, <= 75 kBtu/hr, 50 gal, med. draw, 0.64 UEF
50 gal	0.68 UEF	E	Small storage water heater, <= 75 kBtu/hr, 50 gal, high draw, 0.68 UEF

Base Case Description

A natural gas storage water heater that meets the efficiency ratings specified below, which is consistent with federal, Title 20, and Title 24 regulations.

System Size	Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
> 75 kBtu/hr	90% TE	H	Large storage water heater, > 75 kBtu/hr, 78% TE	Large storage water heater, > 75 kBtu/hr, 80% TE
> 75 kBtu/hr	96% TE	I	Large storage water heater, > 75 kBtu/hr, 78% TE	Large storage water heater, > 75 kBtu/hr, 80% TE
30 gal	0.64 UEF	B	Storage water heater, <= 75 kBtu/hr, 30 gal, 0.59 EF	Storage water heater, <= 75 kBtu/hr, 30 gal - med. draw, 0.60 UEF

System Size	Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
30 gal	0.68 UEF	A	Storage water heater, <= 75 kBtu/hr, 30 gal, 0.59 EF	Storage water heater, <= 75 kBtu/hr, 30 gal - high draw, 0.65 UEF
40 gal	0.64 UEF	D	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.58 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - med. draw, 0.58 UEF
40 gal	0.68 UEF	C	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.58 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF
50 gal	0.64 UEF	F	Storage water heater, <= 75 kBtu/hr, 50 gal, 0.58 EF	Storage water heater, <= 75 kBtu/hr, 50 gal - med. draw, 0.58 UEF
50 gal	0.68 UEF	E	Storage water heater, <= 75 kBtu/hr, 50 gal, 0.58 EF	Storage water heater, <= 75 kBtu/hr, 50 gal - high draw, 0.63 UEF

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUD - University Dormitory, EUn - Education - University, Gro - Grocery, HGR - Hotel Guest Room, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.00	Link
Standard - Peak Demand Reduction (kW)	-0.00	
Existing - Electric Savings (kWh/yr)	-0.10	Link
Standard - Electric Savings (kWh/yr)	-0.10	
Existing - Gas Savings (therm/yr)	1.69	Link
Standard - Gas Savings (therm/yr)	1.44	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	52.27	Link
Base Case Costs ($)	37.00	
Incremental Cost ($)	15.27	
Effective Useful Life (years)	13.00	Link
Remaining Useful Life (years)	4.33	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Eligible commercial storage water heaters must meet the following requirements: • Meet minimum qualifying efficiency ratings • Meet the definition of a storage water heater, as defined by the California Energy Commission: • Be used primarily for domestic hot water.   • Have an input rating of less than 4,000 Btu/hr/gal of stored water. Water heaters or hot water boilers used for space conditioning, industrial (process) end-use applications, pools, or spas are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
None

Boiler, Process

https://www.caetrm.com/measure/SWWH008/02/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH008-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high-efficiency process boiler with an input rating ≤20,000 kBtu/hr, meeting the specified combustion efficiency (CE) and thermal efficiency (TE) requirement. It is assumed that there is a 2% loss in converting from CE to TE ratings. Hot water boilers <=2,500,000 Btu/h should be rated and tested at the specified TE standard and boilers >2,500,000 Btu/h should be rated and tested at the specified CE standard.

Boiler Type	Input Capacity (KBTU/HR)	Measure Case Efficiency	Statewide Measure Offering ID	Measure Offering Description
Hot Water	<= 20,000	89% CE / 87% TE	E	Process boiler, hot water, <= 20,000 kBtu/hr, 89% CE / 87% TE
Hot Water	<= 20,000	94% CE / 92% TE	F	Process boiler, hot water, <= 20,000 kBtu/hr, 94% CE / 92% TE

Base Case Description

The base case is a standard efficiency process water or steam boiler, meeting the 2022 Title 24 minimum efficiency requirement.

Boiler Type	Input Capacity (KBTU/HR)	Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
Hot Water	<= 20,000	89% CE / 87% TE	E	Process boiler, hot water, <= 20,000 kBtu/hr, 86% CE / 84% TE	Process boiler, hot water, <= 20,000 kBtu/hr, 86% CE / 84% TE
Hot Water	<= 20,000	94% CE / 92% TE	F	Process boiler, hot water, <= 20,000 kBtu/hr, 86% CE / 84% TE	Process boiler, hot water, <= 20,000 kBtu/hr, 86% CE / 84% TE

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	2.18	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	45.72	Link
Base Case Costs ($)	35.36	
Incremental Cost ($)	10.36	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
The measure analysis assumed that both the base case and the measure case boiler have the same input rating (in kBtu/hr), deliver the same amount of hot water or steam on an annual basis (i.e., customer demand for hot water or steam does not change). All boilers must have an input rating ≤20,000 kBtu/hr and meet or exceed either the combustion efficiency (CE) or thermal efficiency (TE) under full load conditioners. This measure is not applicable to boilers used for space heating, domestic hot water, pools, or spas.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
None

Boiler, Multifamily

https://www.caetrm.com/measure/SWWH010/03/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH010-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A high-efficiency instantaneous water heater or commercial hot water boiler of a multifamily central water heating system, meeting the specified thermal efficiency (TE) requirement.

Measure Case Efficiency	Statewide Measure Offering ID	Measure Offering Description
90% TE	B	Central domestic hot water boiler, 90% TE
96% TE	C	Central domestic hot water boiler, 96% TE

Base Case Description

An instantaneous water heater or commercial hot water boiler of a multifamily central water heating system, meeting the specified minimum efficiency.

Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
90% TE	B	Domestic hot water boiler, 78% TE	Domestic hot water boiler, 84% TE
96% TE	C	Domestic hot water boiler, 78% TE	Domestic hot water boiler, 84% TE

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	MFm - Residential Multi-family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	10.91	Link
Standard - Gas Savings (therm/yr)	6.25	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	25.78	Link
Base Case Costs ($)	16.22	
Incremental Cost ($)	9.57	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	6.67	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Program eligibility requirements for multifamily DHW boilers defined for this measure include: • Measure offerings are applicable to multifamily properties. • The boiler must serve two or more dwelling units. • Only a gas-for-gas equipment replacement is permitted. • A qualifying boiler must meet the minimum efficiency requirements and emission requirements per their AQMD regulations that apply. • Any size boiler is eligible. This measure does not include water heaters or hot water boilers used for space conditioning, industrial (process) end-use applications, pools, or spas.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
None

Central Storage Water Heater, Multifamily

https://www.caetrm.com/measure/SWWH011/03/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH011-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An energy efficient central storage water heater with rated input >75 kBtu/hr, meeting the specified thermal efficiency (TE).

Measure Case Efficiency	Statewide Measure Offering ID	Measure Offering Description
90% TE	B	Central storage water heater, 90% TE
96% TE	C	Central storage water heater, 96% TE

Base Case Description

A central storage water heater meeting the specified TE, consistent with Title 20, Title 24, and federal codes.

Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
90% TE	B	Central storage hot water heater, 80% TE	Central storage hot water heater, 84% TE
96% TE	C	Central storage hot water heater, 80% TE	Central storage hot water heater, 84% TE

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	MFm - Residential Multi-family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	9.65	Link
Standard - Gas Savings (therm/yr)	5.35	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	70.77	Link
Base Case Costs ($)	37.87	
Incremental Cost ($)	32.90	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Program eligibility requirements for storage water heaters defined for this measure include: • Measure offerings are applicable to multifamily properties. • The large natural gas central water heaters must serve two or more dwelling units. • Only gas-for-gas equipment replacement is permitted. • A qualifying boiler must meet the minimum efficiency requirements and emission requirements per their AQMD regulations that apply. • The rated input for a natural gas fueled storage water heater for this multifamily residential measure must exceed 75 kBtu/hr. • Qualifying storage water heaters must have a storage tank size of least 80 gallons. This measure does not include water heaters or hot water boilers used for space conditioning, industrial (process) end-use applications, pools, or spas. Tankless water heaters or hot water boilers with a separate storage tank that are factory mounted on the same skid are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
None

Storage Water Heater, Residential

https://www.caetrm.com/measure/SWWH012/05/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2025

VERSION
SWWH012-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An electric or gas storage water heater with 30, 40, or 50 gallon storage capacity, meeting the specified uniform (U) energy factor (EF).

System Size	Measure Case Efficiency	Statewide Measure Offering ID	Measure Offering Description
30 Gal	0.64 UEF	E	Storage water heater, <= 75 kBtu/hr, 30 gal, med. draw, 0.64 UEF
30 Gal	0.68 UEF	J	Storage water heater, <= 75 kBtu/hr, 30 gal, high draw, 0.68 UEF
30 Gal	0.78 UEF	M	Condensing storage water heater, <= 75 kBtu/hr, 30 gal, high draw, 0.78 UEF
40 Gal	0.64 UEF	F	Storage water heater, <= 75 kBtu/hr, 40 gal, med. draw, 0.64 UEF
40 Gal	0.68 UEF	G	Storage water heater, <= 75 kBtu/hr, 40 gal, high draw, 0.68 UEF
40 Gal	0.78 UEF	N	Condensing storage water heater, <= 75 kBtu/hr, 40 gal, high draw, 0.78 UEF
50 Gal	0.64 UEF	H	Storage water heater, <= 75 kBtu/hr, 50 gal, med. draw, 0.64 UEF
50 Gal	0.68 UEF	I	Storage water heater, <= 75 kBtu/hr, 50 gal, high draw, 0.68 UEF
50 Gal	0.78 UEF	O	Condensing storage water heater, <= 75 kBtu/hr, 50 gal, high draw, 0.78 UEF

Base Case Description

An electric or gas storage water heater with 30, 40, or 50 gallon storage capacity, meeting the specified EF or UEF requirement.

System Size	Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
30 Gal	0.64 UEF	E	Storage water heater, <= 75 kBtu/hr, 30 gal, 0.59 EF	Storage water heater, <= 75 kBtu/hr, 30 gal - med. draw, 0.60 UEF
30 Gal	0.68 UEF	J	Storage water heater, <= 75 kBtu/hr, 30 gal, 0.59 EF	Storage water heater, <= 75 kBtu/hr, 30 gal - high draw, 0.65 UEF

System Size	Measure Case Efficiency	Statewide Measure Offering ID	Existing Description	Standard Description
30 Gal	0.78 UEF	M	Storage water heater, <= 75 kBtu/hr, 30 gal, 0.59 EF	Storage water heater, <= 75 kBtu/hr, 30 gal - high draw, 0.65 UEF
40 Gal	0.64 UEF	F	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.60 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - med. draw, 0.58 UEF
40 Gal	0.68 UEF	G	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.60 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF
40 Gal	0.78 UEF	N	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.60 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF
50 Gal	0.64 UEF	H	Storage water heater, <= 75 kBtu/hr, 50 gal, 0.59 EF	Storage water heater, <= 75 kBtu/hr, 50 gal - med. draw, 0.56 UEF
50 Gal	0.68 UEF	I	Storage water heater, <= 75 kBtu/hr, 50 gal, 0.59 EF	Storage water heater, <= 75 kBtu/hr, 50 gal - high draw, 0.63 UEF
50 Gal	0.78 UEF	O	Storage water heater, <= 75 kBtu/hr, 50 gal, 0.59 EF	Storage water heater, <= 75 kBtu/hr, 50 gal - high draw, 0.63 UEF

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.00	Link
Standard - Peak Demand Reduction (kW)	-0.00	
Existing - Electric Savings (kWh/yr)	-3.47	Link
Standard - Electric Savings (kWh/yr)	-3.47	
Existing - Gas Savings (therm/yr)	40.76	Link
Standard - Gas Savings (therm/yr)	33.86	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,173.35	Link
Base Case Costs ($)	1,389.81	
Incremental Cost ($)	783.55	
Effective Useful Life (years)	25.00	Link
Remaining Useful Life (years)	8.33	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Eligible water heaters must comply with the measure case specification (see Measure Case Description). Only storage water heaters as defined by the California Energy Commission qualify, and they must: • Be used primarily for domestic hot water. • Have an input rating of less than 4,000 Btu/hr/gal of stored water. Equipment must comply with the test methods referenced in the California Building Energy Efficiency Standards (Title 24) and the California Appliance Efficiency Regulations (Title 20). Additionally, the equipment must meet minimum emissions requirements as defined by local air quality management districts. Water heaters used for commercial domestic hot water, space conditioning, industrial (process) end-use, pool, or spa applications are not eligible. Measure requires “like-for-like” replacement (i.e., electric replacing electric and gas replacing gas).
Quality Assurance: Design, Installation, Commissioning, and Operation
Due to Title 24 prescriptive requirements, this measure package and its savings are not applicable for the following cases • Section 150.1(c)(8) requires 240V heat pump (HP) water heater (WH) for single-family in all climate zones, except 3, 4, 13, and 14 which may instead have a gas tankless WH installed with an input of ≤200,000 Btu/hr when space-heating system is a heat pump per section 150.1(c)(6). Small homes <500 sq.ft. may use a tankless electric water heater in all climate zones. Studio and one-bedroom homes may use 120V HP WH in all climate zones. • Under Section 170.2(d)(1), either 240V HPWH or gas or propane tankless water heaters can be used for multifamily dwelling in all climate zones.
Important Notes
None

Tankless Water Heater, Residential

https://www.caetrm.com/measure/SWWH013/05/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2025

VERSION
SWWH013-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A tankless water heater in a residential application, meeting the specified uniform (U) energy factor (EF), replacing a storage or instantaneous water heater.

Base Case Equipment	Measure Case Efficiency	Draw Pattern	Statewide Measure Offering ID	Measure Offering Description
Instant	0.87 UEF	High Draw	L	Tankless water heater, < 200 kBtu/hr, high draw, 0.87 UEF, replacing tankless water heater
Instant	0.92 UEF	High Draw	M	Tankless water heater, < 200 kBtu/hr, high draw, 0.92 UEF, replacing tankless water heater
Instant	0.96 UEF	High Draw	N	Tankless water heater, < 200 kBtu/hr, high draw, 0.96 UEF, replacing tankless water heater
Storage	0.81 UEF	High Draw	C	Tankless water heater, < 200 kBtu/hr, high draw, 0.81 UEF, replacing storage water heater
Storage	0.81 UEF	Medium Draw	B	Tankless water heater, < 200 kBtu/hr, med. draw, 0.81 UEF, replacing storage water heater
Storage	0.87 UEF	High Draw	F	Tankless water heater, < 200 kBtu/hr, high draw, 0.87 UEF, replacing storage water heater
Storage	0.87 UEF	Medium Draw	E	Tankless water heater, < 200 kBtu/hr, med. draw, 0.87 UEF, replacing storage water heater
Storage	0.92 UEF	High Draw	J	Tankless water heater, < 200 kBtu/hr, high draw, 0.92 UEF, replacing storage water heater
Storage	0.96 UEF	High Draw	K	Tankless water heater, < 200 kBtu/hr, high draw, 0.96 UEF, replacing storage water heater

Base Case Description

A natural gas storage or instantaneous water heater meeting the specified EF or UEF, consistent with Title 20, Title 24, and federal code.

Base Case Equipment	Measure Case Efficiency	Draw Pattern	Statewide Measure Offering ID	Existing Description	Standard Description
Instant	0.87 UEF	High Draw	L	Tankless water heater, < 200 kBtu/hr - high draw, 0.81 UEF	Tankless water heater, < 200 kBtu/hr - high draw, 0.81 UEF
Instant	0.92 UEF	High Draw	M	Tankless water heater, < 200 kBtu/hr - high draw, 0.81 UEF	Tankless water heater, < 200 kBtu/hr - high draw, 0.81 UEF

Base Case Equipment	Measure Case Efficiency	Draw Pattern	Statewide Measure Offering ID	Existing Description	Standard Description
Instant	0.96 UEF	High Draw	N	Tankless water heater, < 200 kBtu/hr - high draw, 0.81 UEF	Tankless water heater, < 200 kBtu/hr - high draw, 0.81 UEF
Storage	0.81 UEF	High Draw	C	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.60 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF
Storage	0.81 UEF	Medium Draw	B	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.60 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - med. draw, 0.58 UEF
Storage	0.87 UEF	High Draw	F	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.60 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF
Storage	0.87 UEF	Medium Draw	E	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.60 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - med. draw, 0.58 UEF
Storage	0.92 UEF	High Draw	J	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.60 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF
Storage	0.96 UEF	High Draw	K	Storage water heater, <= 75 kBtu/hr, 40 gal, 0.60 EF	Storage water heater, <= 75 kBtu/hr, 40 gal - high draw, 0.64 UEF

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, Res - Residential, SFm - Residential Single Family
Building Vintage	Ex - Existing, New - New Construction
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.00	Link
Standard - Peak Demand Reduction (kW)	-0.00	
Existing - Electric Savings (kWh/yr)	-10.29	Link
Standard - Electric Savings (kWh/yr)	-6.43	
Existing - Gas Savings (therm/yr)	84.81	Link
Standard - Gas Savings (therm/yr)	55.22	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,304.38	Link
Base Case Costs ($)	1,355.85	
Incremental Cost ($)	948.54	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	8.33	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Equipment must meet the minimum qualifying UEF for a small or medium (<200 kBtu/hr) tankless water heater. Equipment must meet the minimum emission requirements per air quality management district, if applicable. Only tankless water heaters, as defined by the California Energy Commission (CEC), qualify; they must: • Be used primarily for domestic hot water • Be installed at the point of use • Provide hot water only when there is a hot water draw from the end use • Have an input rating of at least 4,000 Btu per hour per gallon of stored water • Not be connected to an external storage tank • Never be used to supply hot water to a circulation loop Water heaters or hot water boilers used for commercial domestic hot water, space conditioning, industrial (process) end-use, pool, or spa applications are not eligible.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
Due to Title 24 prescriptive requirements, this measure package and its savings are not applicable for the following cases • Section 150.1(c)(8) requires 240V heat pump (HP) water heater (WH) for single-family in all climate zones, except 3, 4, 13, and 14 which may instead have a gas tankless WH installed with an input of ≤200,000 Btu/hr when space-heating system is a heat pump per section 150.1(c)(6). Small homes <500 sq.ft. may use a tankless electric water heater in all climate zones. Studio and one-bedroom homes may use 120V HP WH in all climate zones. • Under Section 170.2(d)(1), either 240V HPWH or gas or propane tankless water heaters can be used for multifamily dwelling in all climate zones.

Heat Pump Water Heater, Residential

https://www.caetrm.com/measure/SWWH014/07/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2025

VERSION
SWWH014-07

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An efficient heat pump (HP) water heater (WH) meeting the specified uniform energy factor (UEF) replacing a base case electric storage or heat pump water heater.

Measure Case Capacity (gal)	Base Case Capacity (gal)	Measure Case Efficiency	Base Case Equipment Type	Statewide Measure Offering ID	Measure Offering Description
>=45 to <=55	30	3.30 UEF	Electric Storage	P	HP water heater: 45 to 55 gal (UEF = 3.30) replacing electric storage water heater: 30 gal (UEF = 0.92)
>=45 to <=55	30	3.50 UEF	Electric Storage	S	HP water heater: 45 to 55 gal (UEF = 3.50) replacing electric storage water heater: 30 gal (UEF = 0.92)
>=45 to <=55	30	3.75 UEF	Electric Storage	V	HP water heater: 45 to 55 gal (UEF = 3.75) replacing electric storage water heater: 30 gal (UEF = 0.92)
>=45 to <=55	40	3.30 UEF	Electric Storage	Q	HP water heater: 45 to 55 gal (UEF = 3.30) replacing electric storage water heater: 40 gal (UEF = 0.92)
>=45 to <=55	40	3.50 UEF	Electric Storage	T	HP water heater: 45 to 55 gal (UEF = 3.50) replacing electric storage water heater: 40 gal (UEF = 0.92)
>=45 to <=55	40	3.75 UEF	Electric Storage	W	HP water heater: 45 to 55 gal (UEF = 3.75) replacing electric storage water heater: 40 gal (UEF = 0.92)
>=45 to <=55	50	3.30 UEF	Electric Storage	R	HP water heater: 45 to 55 gal (UEF = 3.30) replacing electric storage water heater: 50 gal (UEF = 0.92)
>=45 to <=55	50	3.50 UEF	Electric Storage	U	HP water heater: 45 to 55 gal (UEF = 3.50) replacing electric storage water heater: 50 gal (UEF = 0.92)
>=45 to <=55	50	3.75 UEF	Electric Storage	X	HP water heater: 45 to 55 gal (UEF = 3.75) replacing electric storage water heater: 50 gal (UEF = 0.92)
>55 to <=75	60	3.30 UEF	Heat Pump	Y	HP water heater: >55 to 75 gal (UEF = 3.30) replacing HP water heater: 60 gal (UEF = 2.91)
>55 to <=75	60	3.50 UEF	Heat Pump	Z	HP water heater: >55 to 75 gal (UEF = 3.50) replacing HP water heater: 60 gal (UEF = 2.91)
>55 to <=75	60	3.75 UEF	Heat Pump	AA	HP water heater: >55 to 75 gal (UEF = 3.75) replacing HP water heater: 60 gal (UEF = 2.91)
>75	75	3.30 UEF	Heat Pump	AB	HP water heater: >75 gal (UEF = 3.30) replacing HP water heater: 75 gal (UEF = 3.00)

Measure Case Capacity (gal)	Base Case Capacity (gal)	Measure Case Efficiency	Base Case Equipment Type	Statewide Measure Offering ID	Measure Offering Description
>75	75	3.50 UEF	Heat Pump	AC	HP water heater: >75 gal (UEF = 3.50) replacing HP water heater: 75 gal (UEF = 3.00)
>75	75	3.75 UEF	Heat Pump	AD	HP water heater: >75 gal (UEF = 3.75) replacing HP water heater: 75 gal (UEF = 3.00)

Base Case Description

An electric storage water heater with a storage volume of 30, 40, or 50 gallons or a heat pump water heater with a storage volume of 60 or 75 gallons meeting the specified federal code UEF requirement.

Measure Case Capacity (gal)	Base Case Capacity (gal)	Measure Case Efficiency	Base Case Equipment Type	Statewide Measure Offering ID	Existing Description	Standard Description
>=45 to <=55	30	3.30 UEF	Electric Storage	P	Electric storage water heater, 30 gal (UEF = 0.92)	Electric storage water heater, 30 gal (UEF = 0.92)
>=45 to <=55	30	3.50 UEF	Electric Storage	S	Electric storage water heater, 30 gal (UEF = 0.92)	Electric storage water heater, 30 gal (UEF = 0.92)
>=45 to <=55	30	3.75 UEF	Electric Storage	V	Electric storage water heater, 30 gal (UEF = 0.92)	Electric storage water heater, 30 gal (UEF = 0.92)
>=45 to <=55	40	3.30 UEF	Electric Storage	Q	Electric storage water heater, 40 gal (UEF = 0.92)	Electric storage water heater, 40 gal (UEF = 0.92)
>=45 to <=55	40	3.50 UEF	Electric Storage	T	Electric storage water heater, 40 gal (UEF = 0.92)	Electric storage water heater, 40 gal (UEF = 0.92)
>=45 to <=55	40	3.75 UEF	Electric Storage	W	Electric storage water heater, 40 gal (UEF = 0.92)	Electric storage water heater, 40 gal (UEF = 0.92)
>=45 to <=55	50	3.30 UEF	Electric Storage	R	Electric storage water heater, 50 gal (UEF = 0.92)	Electric storage water heater, 50 gal (UEF = 0.92)
>=45 to <=55	50	3.50 UEF	Electric Storage	U	Electric storage water heater, 50 gal (UEF = 0.92)	Electric storage water heater, 50 gal (UEF = 0.92)
>=45 to <=55	50	3.75 UEF	Electric Storage	X	Electric storage water heater, 50 gal (UEF = 0.92)	Electric storage water heater, 50 gal (UEF = 0.92)
>55 to <=75	60	3.30 UEF	Heat Pump	Y	HP water heater, 60 gal (UEF = 2.91)	HP water heater, 60 gal (UEF = 2.91)
>55 to <=75	60	3.50 UEF	Heat Pump	Z	HP water heater, 60 gal (UEF = 2.91)	HP water heater, 60 gal (UEF = 2.91)
>55 to <=75	60	3.75 UEF	Heat Pump	AA	HP water heater, 60 gal (UEF = 2.91)	HP water heater, 60 gal (UEF = 2.91)
>75	75	3.30 UEF	Heat Pump	AB	HP water heater, 75 gal (UEF = 3.00)	HP water heater, 75 gal (UEF = 3.00)
>75	75	3.50 UEF	Heat Pump	AC	HP water heater, 75 gal (UEF = 3.00)	HP water heater, 75 gal (UEF = 3.00)
>75	75	3.75 UEF	Heat Pump	AD	HP water heater, 75 gal (UEF = 3.00)	HP water heater, 75 gal (UEF = 3.00)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing, New - New Construction
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.13	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	878.96	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,707.15	Link
Base Case Costs ($)	1,841.54	
Incremental Cost ($)	865.60	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions

The new HPWH must meet the storage capacity and minimum efficiency requirements. In order to accommodate upsizing projects, the new heat pump water heater storage capacity may exceed the measure case storage capacity ranges. For example, for offering R "HP water heater: 45 to 55 gal (UEF = 3.30) replacing electric storage water heater: 50 gal (UEF = 0.92)", a new heat pump water heater of 60 or 80 gallons may be installed if needed.

The installed WHs storage capacity must be ≥45 gallons.

The 60- and 75-gallons offerings use HPWH baseline assumptions in the calculations. Therefore, these offerings can be used to replace less efficient base case equipment, such as electric resistance storage water heaters, since the savings are conservative.

To accommodate water heater storage capacities that do not exactly match the nominal storage capacity, the following shows the range of rated storage capacities that are eligible for each nominal storage capacity listed for baseline equipment:

- 30 gal: 26 gal - 35 gal
- 40 gal: 36 gal - 45 gal
- 50 gal: 46 gal - 55 gal
- 60 gal: 56 gal - 69 gal
- 75 gal: 70 gal - 89 gal

The new construction (NC) measure application type is only eligible for offerings that use a HPWH baseline, which are offerings Y, Z, AA, AB, AC, and AD.

The following are ineligible:

- Replacement of an “instantaneous” or “tankless” water heater
- A new HPWH with <45 gallons
- Adding a new water heater to serve new load associated with added conditioned floor area in an existing building

Quality Assurance: Design, Installation, Commissioning, and Operation

Verify that new unit meets or exceeds the required efficiency in the Offering ID table.

Verify the unit capacity is adequately sized for the base case replacement.

Verify that new unit is properly installed and commissioned.

Important Notes

Only electric storage WHs are eligible as baselines. For the fuel substitution measure, see SWWH025.

HPWHs use the surrounding air as a heat source. If the HWHP is installed within the home, it imposes a heating load on the home’s air conditioning system. Unit efficiency decreases as the ambient temperature falls below 68°F. If ambient space temperature falls below 45°F, the unit’s electrical resistance heaters are enabled, significantly lowering the heater’s energy performance.

Demand Control for Centralized Water Heater Recirculation Pump, Multifamily & Commercial

https://www.caetrm.com/measure/SWWH015/03/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2023

VERSION
SWWH015-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An on-demand domestic hot water (DHW) pump that utilizes flow control methods, such as variable frequency drives (VFDs), integrated or remote sensors, and control systems that respond to demand by controlling the hot water recirculation loop temperature.

Sector	Total Number of Dwelling Units	Statewide Measure Offering ID	Measure Offering Description
Com	1 - 25 units	K	DHW pump demand control, gas, Com, 25 units
Com	101 -125 units	O	DHW pump demand control, gas, Com, 125 units
Com	126 - 150 units	P	DHW pump demand control, gas, Com, 150 units
Com	151 - 175 units	Q	DHW pump demand control, gas, Com, 175 units
Com	176 - 200 units	R	DHW pump demand control, gas, Com, 200 units
Com	201 - 225 units	S	DHW pump demand control, gas, Com, 225 units
Com	226 - 250 units	T	DHW pump demand control, gas, Com, 250+units
Com	26 - 50 units	L	DHW pump demand control, gas, Com, 50 units
Com	51 - 75 units	M	DHW pump demand control, gas, Com, 75 units
Com	76 - 100 units	N	DHW pump demand control, gas, Com, 100 units
Res	1 - 5 units	A	DHW pump demand control, gas, MFm, 5 units
Res	11 - 15 units	C	DHW pump demand control, gas, MFm, 15 units
Res	16 - 20 units	D	DHW pump demand control, gas, MFm, 20 units
Res	21 - 25 units	E	DHW pump demand control, gas, MFm, 25 units
Res	26 - 30 units	F	DHW pump demand control, gas, MFm, 30 units
Res	31 - 35 units	G	DHW pump demand control, gas, MFm, 35 units
Res	36 - 40 units	H	DHW pump demand control, gas, MFm, 40 units
Res	41 - 45 units	I	DHW pump demand control, gas, MFm, 45 units
Res	46 - 50 units	J	DHW pump demand control, gas, MFm, 50 units
Res	6 - 10 units	B	DHW pump demand control, gas, MFm, 10 units

Base Case Description

A centralized, natural gas DHW system with a recirculation pump that operates continuously in multifamily and commercial building.

Sector	Total Number of Dwelling Units	Statewide Measure Offering ID	Existing Description	Standard Description
Com	1 - 25 units	K	No DHW pump demand control, gas, Com, 25 units	No DHW pump demand control, gas, Com, 25 units
Com	101 -125 units	O	No DHW pump demand control, gas, Com, 125 units	No DHW pump demand control, gas, Com, 125 units
Com	126 - 150 units	P	No DHW pump demand control, gas, Com, 150 units	No DHW pump demand control, gas, Com, 150 units
Com	151 - 175 units	Q	No DHW pump demand control, gas, Com, 175 units	No DHW pump demand control, gas, Com, 175 units
Com	176 - 200 units	R	No DHW pump demand control, gas, Com, 200 units	No DHW pump demand control, gas, Com, 200 units
Com	201 - 225 units	S	No DHW pump demand control, gas, Com, 225 units	No DHW pump demand control, gas, Com, 225 units
Com	226 - 250 units	T	No DHW pump demand control, gas, Com, 250+ units	No DHW pump demand control, gas, Com, 250+ units
Com	26 - 50 units	L	No DHW pump demand control, gas, Com, 50 units	No DHW pump demand control, gas, Com, 50 units
Com	51 - 75 units	M	No DHW pump demand control, gas, Com, 75 units	No DHW pump demand control, gas, Com, 75 units
Com	76 - 100 units	N	No DHW pump demand control, gas, Com, 100 units	No DHW pump demand control, gas, Com, 100 units
Res	1 - 5 units	A	No DHW pump demand control, gas, MFm, 5 units	No DHW pump demand control, gas, MFm, 5 units
Res	11 - 15 units	C	No DHW pump demand control, gas, MFm, 15 units	No DHW pump demand control, gas, MFm, 15 units
Res	16 - 20 units	D	No DHW pump demand control, gas, MFm, 20 units	No DHW pump demand control, gas, MFm, 20 units
Res	21 - 25 units	E	No DHW pump demand control, gas, MFm, 25 units	No DHW pump demand control, gas, MFm, 25 units
Res	26 - 30 units	F	No DHW pump demand control, gas, MFm, 30 units	No DHW pump demand control, gas, MFm, 30 units
Res	31 - 35 units	G	No DHW pump demand control, gas, MFm, 35 units	No DHW pump demand control, gas, MFm, 35 units
Res	36 - 40 units	H	No DHW pump demand control, gas, MFm, 40 units	No DHW pump demand control, gas, MFm, 40 units
Res	41 - 45 units	I	No DHW pump demand control, gas, MFm, 45 units	No DHW pump demand control, gas, MFm, 45 units
Res	46 - 50 units	J	No DHW pump demand control, gas, MFm, 50 units	No DHW pump demand control, gas, MFm, 50 units
Res	6 - 10 units	B	No DHW pump demand control, gas, MFm, 10 units	No DHW pump demand control, gas, MFm, 10 units

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Res - Residential
Building Type	EUD - University Dormitory, Htl - Lodging - Hotel, MFm - Residential Multi-family, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Household - dwelling or household
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg, DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	4.56	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	7.74	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	52.82	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
This measure is only applicable to existing buildings with systems that utilize standalone domestic hot water systems. Hot water generation systems must be used primarily for domestic hot water heating uses. Hot water generation systems used for pool or spa heating are not eligible for this measure. The hot water supply and hot water return lines of the recirculation loop must maintain a temperature difference of at least 20°F. For example, for the energy modeling purposes of this workpaper, the supply temperature was set at 135 °F and the return temperature was maintained at 105°F. Facilities that must maintain hot water temperature of 140°F to control legionella bacteria are not eligible. Local, state and federal regulations must be followed to avoid the risk of legionella growth as well as scalding. The domestic hot water recirculation loop is located exclusively within the building envelope's conditioned space.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Domestic Hot Water Loop Temperature Controller, Multifamily & Commercial

https://www.caetrm.com/measure/SWWH016/05/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2025

VERSION
SWWH016-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a “temperature modulation” boiler controller in the central water heating system of qualifying facilities (multifamily, hotel, motel, nursing home and university dormitories) to minimize the supply and return water temperatures and piping heat losses. Some facilities might require more than one boiler controller; offerings are characterized by the number of dwelling units controlled by the controller.

Sector	Total Number of Dwelling Units	Statewide Measure Offering ID	Measure Offering Description
Com	1 - 25 units	K	DHW loop temp controller, gas, Com, 25 units
Com	101 - 125 units	O	DHW loop temp controller, gas, Com, 125 units
Com	126 - 150 units	P	DHW loop temp controller, gas, Com, 150 units
Com	151 - 175 units	Q	DHW loop temp controller, gas, Com, 175 units
Com	176 - 200 units	R	DHW loop temp controller, gas, Com, 200 units
Com	201 - 225 units	S	DHW loop temp controller, gas, Com, 225 units
Com	226 - 250 units	T	DHW loop temp controller, gas, Com, 250+ units
Com	26 - 50 units	L	DHW loop temp controller, gas, Com, 50 units
Com	51 - 75 units	M	DHW loop temp controller, gas, Com, 75 units
Com	76 - 100 units	N	DHW loop temp controller, gas, Com, 100 units
Res	1 - 5 units	A	DHW loop temp controller, gas, MFm, 5 units
Res	11 - 15 units	C	DHW loop temp controller, gas, MFm, 15 units
Res	16 - 20 units	D	DHW loop temp controller, gas, MFm, 20 units
Res	21 - 25 units	E	DHW loop temp controller, gas, MFm, 25 units
Res	26 - 30 units	F	DHW loop temp controller, gas, MFm, 30 units
Res	31 - 35 units	G	DHW loop temp controller, gas, MFm, 35 units
Res	36 - 40 units	H	DHW loop temp controller, gas, MFm, 40 units
Res	41 - 45 units	I	DHW loop temp controller, gas, MFm, 45 units
Res	46 - 50 units	J	DHW loop temp controller, gas, MFm, 50 units

Sector	Total Number of Dwelling Units	Statewide Measure Offering ID	Measure Offering Description
Res	6 - 10 units	B	DHW loop temp controller, gas, MFm, 10 units

Base Case Description

An existing gas storage water heating system of qualifying facilities without “temperature modulation” boiler control or demand-controlled recirculation pump. The base case typically maintains a continuous ≥135°F supply temperature, which is sufficient to meet the demand requirements at design conditions but is excessive otherwise and will result in high distribution system losses.

Sector	Total Number of Dwelling Units	Statewide Measure Offering ID	Existing Description	Standard Description
Com	1 - 25 units	K	No DHW loop controller, gas, Com, 25 units	No DHW loop controller, gas, Com, 25 units
Com	101 - 125 units	O	No DHW loop controller, gas, Com, 125 units	No DHW loop controller, gas, Com, 125 units
Com	126 - 150 units	P	No DHW loop controller, gas, Com, 150 units	No DHW loop controller, gas, Com, 150 units
Com	151 - 175 units	Q	No DHW loop controller, gas, Com, 175 units	No DHW loop controller, gas, Com, 175 units
Com	176 - 200 units	R	No DHW loop controller, gas, Com, 200 units	No DHW loop controller, gas, Com, 200 units
Com	201 - 225 units	S	No DHW loop controller, gas, Com, 225 units	No DHW loop controller, gas, Com, 225 units
Com	226 - 250 units	T	No DHW loop controller, gas, Com, 250+ units	No DHW loop controller, gas, Com, 250+ units
Com	26 - 50 units	L	No DHW loop controller, gas, Com, 50 units	No DHW loop controller, gas, Com, 50 units
Com	51 - 75 units	M	No DHW loop controller, gas, Com, 75 units	No DHW loop controller, gas, Com, 75 units
Com	76 - 100 units	N	No DHW loop controller, gas, Com, 100 units	No DHW loop controller, gas, Com, 100 units
Res	1 - 5 units	A	No DHW loop controller, gas, MFm, 5 units	No DHW loop controller, gas, MFm, 5 units
Res	11 - 15 units	C	No DHW loop controller, gas, MFm, 15 units	No DHW loop controller, gas, MFm, 15 units
Res	16 - 20 units	D	No DHW loop controller, gas, MFm, 20 units	No DHW loop controller, gas, MFm, 20 units
Res	21 - 25 units	E	No DHW loop controller, gas, MFm, 25 units	No DHW loop controller, gas, MFm, 25 units
Res	26 - 30 units	F	No DHW loop controller, gas, MFm, 30 units	No DHW loop controller, gas, MFm, 30 units
Res	31 - 35 units	G	No DHW loop controller, gas, MFm, 35 units	No DHW loop controller, gas, MFm, 35 units
Res	36 - 40 units	H	No DHW loop controller, gas, MFm, 40 units	No DHW loop controller, gas, MFm, 40 units
Res	41 - 45 units	I	No DHW loop controller, gas, MFm, 45 units	No DHW loop controller, gas, MFm, 45 units
Res	46 - 50 units	J	No DHW loop controller, gas, MFm, 50+ units	No DHW loop controller, gas, MFm, 50+ units
Res	6 - 10 units	B	No DHW loop controller, gas, MFm, 10 units	No DHW loop controller, gas, MFm, 10 units

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial, Res - Residential
Building Type	EUD - University Dormitory, Htl - Lodging - Hotel, MFm - Residential Multi-family, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home
Building Vintage	Ex - Existing
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Household - dwelling or household
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg, DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	7.28	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	52.82	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	4.33	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
This measure qualifies only for gas central hot-water systems used primarily for domestic hot-water heating. Central hot water systems with demand-controlled recirculation pumps are not eligible. Facilities that must maintain hot water temperature of 140°F to control legionella bacteria are not eligible. Local, state and federal regulations must be followed to avoid the risk of legionella growth as well as scalding.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Hot Water Pipe Insulation, Nonresidential and Multifamily

https://www.caetrm.com/measure/SWWH017/06/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH017-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of an insulation layer to an existing bare pipe system that transports hot liquid to reduce the amount of heat loss throughout the pipe length or through the fitting surface area. Offerings are characterized by the pipe location, pipe diameter, fitting type (pipe v. fittings), water heater type, and pipe surface temperature. Insulation thickness varies by the pipe diameter and surface temperature, as stipulated in 2022 Title 24 Table 120.3, Table 160.3, and Table 160.4.

Base Case Description

A bare (un-insulated) pipe system used to transport hot liquid at a non-residential or multifamily facility.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial, Res - Residential
Building Type	Any - All Subsectors, MFmCmn - Residential Multi-family Common Area
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones, Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology, Len-ft - length (feet)
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.09	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	611.73	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	23.12	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	74.03	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	12.19	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Program eligibility requirements for hot water pipe insulation include: • The minimum qualifying pipe diameter is ½-inch. • The pipe must transfer hot water, low-pressure steam, or medium-pressure steam directly from gas-fired, electric, or HPWH equipment, and the fluid type must be indicated. If the fluid is steam, the pressure of the steam must also be indicated. • Fitting installations are for simple fittings (tees, couplings, elbows). • The pipe insulation must meet the required thickness and must be added to existing bare steel or copper pipe. • Acceptable types of insulation for hot water pipes include elastomeric foam rubber, polyethylene foam, UV-resistant polyethylene foam, and rigid polyurethane foam. • Acceptable types of insulation for steam pipes include silicone foam rubber, melamine foam, rigid urethane-based foam, cellular glass, rigid fiberglass, and rigid mineral wool. The following are ineligible: • Fittings which require regular service (flanges, valves) • New construction applications or retrofit/additions that trigger compliance with current California Building Energy Efficiency Standards (Title 24) requirements. The 2022 Title 24, Section 110.3 establishes requirements for tank insulation in the design and installation of space-conditioning and service water heating systems and equipment. (This would be the case for both new facilities and facilities undergoing renovations that would trigger code compliance.) • Insulation required by employee safety laws (Occupational Safety and Health Administration, OSHA). The California OSHA Standards Board, Section 3308 requires employers to insulate or guard hot pipes and hot surfaces of 140 °F or higher that are located within seven feet of the floor or within 15 inches from stairways, ramps, or fixed ladders • Replacement of damaged (existing) insulation • Residential steam pipe and fitting insulations
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Hot Water Tank Insulation, Nonresidential and Multifamily

https://www.caetrm.com/measure/SWWH018/05/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH018-05

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of 1-in or 2-in insulation in an existing uninsulated hot water tank. Offerings are characterized by the insulation thickness, the process temperature range (i.e., temperature inside the tank), water usage (defined by the hours of operation), and tank location (i.e., indoor v. outdoor).

Insulation Thickness	Temperature	Usage	Location	Statewide Measure Offering ID	Measure Offering Description
1"	High Temp	High Usage	Indoor	C	1-in insulation, 170 - 200 deg F, high usage, indoor
1"	High Temp	High Usage	Outdoor	D	1-in insulation, 170 - 200 deg F, high usage, outdoor
1"	High Temp	Low Usage	Indoor	G	1-in insulation, 170 - 200 deg F, low usage, indoor
1"	High Temp	Low Usage	Outdoor	H	1-in insulation, 170 - 200 deg F, low usage, outdoor
1"	Medium Temp	High Usage	Indoor	A	1-in insulation, 120 - 170 deg F, high usage, indoor
1"	Medium Temp	High Usage	Outdoor	B	1-in insulation, 120 - 170 deg F, high usage, outdoor
1"	Medium Temp	Low Usage	Indoor	E	1-in insulation, 120 - 170 deg F, low usage, indoor
1"	Medium Temp	Low Usage	Outdoor	F	1-in insulation, 120 - 170 deg F, low usage, outdoor
2"	High Temp	High Usage	Indoor	K	2-in insulation, 170 - 200 deg F, high usage, indoor
2"	High Temp	High Usage	Outdoor	L	2-in insulation, 170 - 200 deg F, high usage, outdoor
2"	Medium Temp	High Usage	Indoor	I	2-in insulation, 120 - 170 deg F, high usage, indoor
2"	Medium Temp	High Usage	Outdoor	J	2-in insulation, 120 - 170 deg F, high usage, outdoor

Base Case Description

An existing bare, uninsulated hot water tank used for domestic, service or process liquid or solutions applications in commercial, industrial, agriculture facilities, and multifamily central water heating facilities. Tank usually stores ≥100 gallons.

Insulation Thickness	Temperature	Usage	Location	Statewide Measure Offering ID	Existing Description	Standard Description
1"	High Temp	High Usage	Indoor	C	No tank insulation	No tank insulation
1"	High Temp	High Usage	Outdoor	D	No tank insulation	No tank insulation
1"	High Temp	Low Usage	Indoor	G	No tank insulation	No tank insulation
1"	High Temp	Low Usage	Outdoor	H	No tank insulation	No tank insulation
1"	Medium Temp	High Usage	Indoor	A	No tank insulation	No tank insulation
1"	Medium Temp	High Usage	Outdoor	B	No tank insulation	No tank insulation
1"	Medium Temp	Low Usage	Indoor	E	No tank insulation	No tank insulation
1"	Medium Temp	Low Usage	Outdoor	F	No tank insulation	No tank insulation
2"	High Temp	High Usage	Indoor	K	No tank insulation	No tank insulation
2"	High Temp	High Usage	Outdoor	L	No tank insulation	No tank insulation
2"	Medium Temp	High Usage	Indoor	I	No tank insulation	No tank insulation
2"	Medium Temp	High Usage	Outdoor	J	No tank insulation	No tank insulation

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial, Res - Residential
Building Type	Any - All Subsectors, MFmCmn - Residential Multi-family Common Area
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones, Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Area-ft2 - square feet of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	0.00	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	15.12	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	16.62	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	7.00	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
This measure requires the installation of 1-inch or 2-inch fiberglass or foam insulation to an existing, bare liquid solution storage or transfer tank. The tank must be coupled to gas-fired commercial, industrial, agriculture, or multifamily central equipment that transfers heat to the contained liquid or solution. The following are ineligible: • New construction applications or retrofit/additions that trigger compliance with current California Title 24 requirements. The 2016 Title 24, Section 110.3 establishes requirements for tank insulation in the design and installation of space-conditioning and service water heating systems and equipment. (This would be the case for both new facilities and facilities undergoing renovations that would trigger code compliance.) • Insulation required by California Building Energy Efficiency Standards (Title 24) or employee safety laws (Occupational Safety and Health Administration, OSHA). • Tanks insulated to prevent burns • The California OSHA Standards Board, Section 3308 requires employers to insulate or guard hot pipes and hot surfaces of 140°F or higher that are located within seven feet of the floor or within 15 inches from stairways, ramps, or fixed ladders. • Replacement of old or damaged insulation
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Faucet Aerator, Commercial

https://www.caetrm.com/measure/SWWH019/06/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

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SWWH019-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A low-flow faucet aerator or the installation of a flow control valve (FCV) on an existing faucet in a public or private lavatory in a commercial building. Offerings are characterized by the equipment type, installed location, water heater type and fuel (heat pump, electric resistance, or natural gas), and flow rate in gallons per minute (gpm).

Base Case Description

The existing base case is a faucet with no aerator in a public or private lavatory in a commercial building. The base case flow rate is 1.67 gpm.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.02	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	51.78	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	1.47	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	1,229.40	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	32.84	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	6.67	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
A private lavatory faucet is located in an individual dwelling unit such as a hotel/motel guest room, dorm room, or nursing home room. A public lavatory faucet is located in a bathroom shared by a communal area, such as a school, restaurant, hotel lobby, or office building. This energy efficiency measure is applicable to an existing faucet in a commercial building that has a flow rate of ≥1.67 gpm. Faucets at health care facilities that are subject to the Office of Statewide Health Planning and Development (OSHPD) code and regulation (e.g. hospitals, clinics, skilled nursing facilities) are not applicable for this measure. The use of aerators is banned in the health care industry due to aerator flow control methods and components. The mixing of air and water within the aerator allows airborne bacteria to become waterborne and, in warm stagnant conditions, promote bacterial growth. Non-aerating laminar flow restrictors (LFRs) must be installed on faucets in these facilities. The FCV is only applicable to add-one equipment (AOE) measure application type.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Low-Flow Showerhead, Commercial

https://www.caetrm.com/measure/SWWH020/06/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

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SWWH020-06

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12/31/2028

Measure Case and Base Case Description:

Offering ID

An efficient showerhead or the installation of a flow control valve (FCV), in a commercial facility, that meets the specified flow rate. Offerings are characterized by the equipment type, water heater type and fuel (heat pump, electric resistance, or natural gas), flow rate in gallons per minute (gpm), and measure application type.

Base Case Description

The existing base case is a showerhead with a flow rate of 2.25 gpm, derived from flow rate data collected by Blackstone at five hotel/motel properties in Southern California. The standard base case is a low-flow showerhead that meets 2021 Title 20 maximum flow rate requirements of 1.8 gpm.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial
Building Type	ECC - Education - Community College, EPr - Education - Primary School, ESe - Education - Secondary School, EUD - University Dormitory, EUn - Education - University, Htl - Lodging - Hotel, Mtl - Lodging - Motel
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.02	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	101.19	Link
Standard - Electric Savings (kWh/yr)	49.14	
Existing - Gas Savings (therm/yr)	2.87	Link
Standard - Gas Savings (therm/yr)	1.39	
Existing - Water Savings (gal/yr)	1,955.10	Link
Standard - Water Savings (gal/yr)	949.33	
Measure Case Costs ($)	50.76	Link
Base Case Costs ($)	49.72	
Incremental Cost ($)	4.05	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	3.30	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
The measure for the accelerated replacement of low-flow showerheads is applicable for the replacement of the existing showerhead of 2.5 gpm flow rate or greater with a low-flow showerhead of 1.8 gpm or lower flow rate. The measure for the installation of low-flow showerheads is applicable for the normal replacement/new construction of the existing showerhead of 1.8 gpm flow rate or greater with a low-flow showerhead of 1.7 gpm or lower flow rate. The installed low-flow showerhead shall meet the requirements of test procedure ANSI/ASME A112.18.1-2000, Section 5.5. The measure for the installation of flow control valves is applicable for the add-on equipment onto an existing showerhead with the flow rate of 2.5 gpm or greater, reducing the flow rate to 1.8 gpm or lower. The facility must have natural gas, heat pump water heater, or electric as the water heating source fuel.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Recirculation Pump Timer, Commercial

https://www.caetrm.com/measure/SWWH021/02/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH021-02

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of a timer control to a recirculation loop in a commercial building. Offerings are characterized by the recirculation pump horsepower.

Recirculation Pump Horsepower Range (hp)	Statewide Measure Offering ID	Measure Offering Description
<= 1/12	A	Recirculation pump timer, <= 1/12 hp
> 1/12 and <= 1/3	B	Recirculation pump timer, > 1/12 and <= 1/3 hp
> 1/3	C	Recirculation pump timer, > 1/3 hp

Base Case Description

A continuously operating recirculation pump from which hot water is always available at the fixture, irrespective of hot water loop temperature or system demand.

Recirculation Pump Horsepower Range (hp)	Statewide Measure Offering ID	Existing Description	Standard Description
<= 1/12	A	Recirculation pump, no timer	Recirculation pump, title 24 standard
> 1/12 and <= 1/3	B	Recirculation pump, no timer	Recirculation pump, title 24 standard
> 1/3	C	Recirculation pump, no timer	Recirculation pump, title 24 standard

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Com - Commercial
Building Type	Cnc - Health/Medical - Clinics, EPr - Education - Primary School, ESe -Education - Secondary School, Fhc - Fitness Center - Private Health Club, OfL - Office - Large, OfS - Office - Small
Building Vintage	Ex - Existing \ Median Age
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	1,241.33	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	1,837.44	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	558.31	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	5.00	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Eligibility requirements for this measure include the following: • The building must have a hot water recirculation system that can be turned OFF entirely for a set period of the day and/or week. • The building must have a centralized, gas-fired, hot-water system with a constant-flow, fractional-horsepower, uncontrolled recirculation pump. • The timer device must have seven-day (or better) scheduling capabilities. There is no restriction on manufacturer or brand-naming.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Diverting Tub Spout with TSV, Residential

https://www.caetrm.com/measure/SWWH023/03/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

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SWWH023-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An auto-diverting tub spout (ADTS) (5.0 gallon per minute - gpm) with a thermostatic shut-off valve (TSV) that purges cold water through tub spout until the water rises to 95°F and then diverts the water to the showerhead at a trickle until full flow (1.5 gpm) is activated.

Fuel Type	Water Heater Type	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
Electric	HPWH	AR	M	Auto-diverting tub spout with thermostatic shut-off showerhead, 1.5gpm, HPWH, AR
Electric	HPWH	NC	N	Auto-diverting tub spout with thermostatic shut-off showerhead, 1.5gpm, HPWH, NR/NC
Electric	HPWH	NR	N	Auto-diverting tub spout with thermostatic shut-off showerhead, 1.5gpm, HPWH, NR/NC
Electric	Resistance	AR	K	Auto-diverting tub spout with thermostatic shut-off showerhead, 1.5gpm, resistance, AR
Electric	Resistance	NC	L	Auto-diverting tub spout with thermostatic shut-off showerhead, 1.5gpm, resistance, NR/NC
Electric	Resistance	NR	L	Auto-diverting tub spout with thermostatic shut-off showerhead, 1.5gpm, resistance, NR/NC
Gas	Gas	AR	I	Auto-diverting tub spout with thermostatic shut-off showerhead, 1.5gpm, gas, AR
Gas	Gas	NC	J	Auto-diverting tub spout with thermostatic shut-off showerhead, 1.5gpm, gas, NR/NC
Gas	Gas	NR	J	Auto-diverting tub spout with thermostatic shut-off showerhead, 1.5gpm, gas, NR/NC

Base Case Description

For new construction and normal replacement, the standard base case is a 5-gpm tub spout and showerhead meeting the 2016 Title 20 requirement of 2.0 gpm. For accelerated replacement, the existing baseline is a 5-gpm tub spout and a 2.25 gpm showerhead; the standard base case is a 5 gpm tub spout and showerhead meeting the 2018 Title 20 requirement of 1.8 gpm.

Water Heater Type	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Gas	AR	I	No auto-diverter, 2.25 gpm showerhead, gas	No auto-diverter, 1.8 gpm showerhead, gas
Gas	NC	J	No auto-diverter, 1.8 gpm showerhead, gas	No auto-diverter, 1.8 gpm showerhead, gas
Gas	NR	J	No auto-diverter, 1.8 gpm showerhead, gas	No auto-diverter, 1.8 gpm showerhead, gas
HPWH	AR	M	No auto-diverter, 2.25 gpm showerhead, HPWH	No auto-diverter, 1.8 gpm showerhead, HPWH
HPWH	NC	N	No auto-diverter, 1.8 gpm showerhead, HPWH	No auto-diverter, 1.8 gpm showerhead, HPWH
HPWH	NR	N	No auto-diverter, 1.8 gpm showerhead, HPWH	No auto-diverter, 1.8 gpm showerhead, HPWH
Resistance	AR	K	No auto-diverter, 2.25 gpm showerhead, resistance	No auto-diverter, 1.8 gpm showerhead, resistance
Resistance	NC	L	No auto-diverter, 1.8 gpm showerhead, resistance	No auto-diverter, 1.8 gpm showerhead, resistance
Resistance	NR	L	No auto-diverter, 1.8 gpm showerhead, resistance	No auto-diverter, 1.8 gpm showerhead, resistance

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.02	Link
Standard - Peak Demand Reduction (kW)	0.01	
Existing - Electric Savings (kWh/yr)	124.05	Link
Standard - Electric Savings (kWh/yr)	69.83	
Existing - Gas Savings (therm/yr)	3.79	Link
Standard - Gas Savings (therm/yr)	2.13	
Existing - Water Savings (gal/yr)	2,396.95	Link
Standard - Water Savings (gal/yr)	1,348.61	
Measure Case Costs ($)	189.09	Link
Base Case Costs ($)	119.31	
Incremental Cost ($)	69.78	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	3.30	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
The ADTS with TSV must meet the required specification. Additionally, the product must be certified by International Association of Plumbing and Mechanical Officials (IAPMO). The measure cannot be applied where a tankless water heater is used. Instantaneous tankless water heaters may have different effects on savings with thermostatic shut-off valves. This measure is not compatible with showers with a wall-mounted diverter.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Heat Pump Water Heater, Residential, Fuel Substitution

https://www.caetrm.com/measure/SWWH025/09/

USE CATEGORY
WH - Service & Domestic Hot Water

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VERSION
SWWH025-09

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12/31/2028

Measure Case and Base Case Description:

Offering ID

A residential heat pump water heater meeting the specified uniform energy factor (UEF) requirement replacing a base case natural gas water heater.

Base Case Description

A residential natural gas storage or instantaneous water heater meeting the minimum federal code UEF requirement.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	DMo - Residential Mobile Home, MFm - Residential Multi-family, SFm - Residential Single Family
Building Vintage	Ex - Existing
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-1,332.08	Link
Standard - Electric Savings (kWh/yr)	-1,332.08	
Existing - Gas Savings (therm/yr)	174.94	Link
Standard - Gas Savings (therm/yr)	174.94	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,986.82	Link
Base Case Costs ($)	1,504.28	
Incremental Cost ($)	1,482.54	
Effective Useful Life (years)	20.00	Link
Remaining Useful Life (years)	8.18	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
The new heat pump water heater must meet the storage capacity and minimum efficiency requirements. In order to accommodate upsizing projects, the new heat pump water heater storage capacity may exceed the measure case storage capacity ranges. For example, for offering AH "Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.30 replacing storage natural gas water heater, 50 gal, UEF = 0.63", a new heat pump water heater of 60 or 80 gallons may be installed if needed. To accommodate water heater storage capacities that do not exactly match the nominal storage capacity, the following shows the range of rated storage capacities that are eligible for each nominal storage capacity listed for baseline equipment: • 30 gal: 26 gal - 35 gal • 40 gal: 36 gal - 45 gal • 50 gal: 46 gal - 55 gal • 60 gal: 56 gal - 69 gal • 75 gal: 70 gal - 89 gal Replacement of electric baseline equipment is not eligible. For replacing existing electric water, see SWWH014.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
This is a fuel substitution measure.

Water Heater Pipe Wrap, Residential

https://www.caetrm.com/measure/SWWH026/06/

USE CATEGORY
WH - Service & Domestic Hot Water

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SWWH026-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

The installation of at least 1-inch insulation on the first three feet of both hot and cold-water supply lines connected to an uninsulated 1-inch or smaller pipe system of an in-dwelling storage water heater. Offerings are characterized by the pipe location, water heater fuel, and water heater type.

Location	Fuel Type	Water Heater Type	Statewide Measure Offering ID	Measure Offering Description
Indoor	Electric	HPWH	E	1-in residential pipe wrap, HPWH
Indoor	Electric	Resistance	C	1-in residential pipe wrap, resistance
Indoor	Gas	Gas	A	1-in residential pipe wrap, gas
Outdoor	Electric	HPWH	F	1-in residential pipe wrap, HPWH
Outdoor	Electric	Resistance	D	1-in residential pipe wrap, resistance
Outdoor	Gas	Gas	B	1-in residential pipe wrap, gas

Base Case Description

An existing bare (un-insulated) 1-inch or smaller pipe within the first three feet of both hot water and cold-water supply lines connected to a residential storage water heater.

Location	Fuel Type	Water Heater Type	Statewide Measure Offering ID	Existing Description	Standard Description
Indoor	Electric	HPWH	E	Uninsulated pipe, HPWH	Uninsulated pipe, HPWH
Indoor	Electric	Resistance	C	Uninsulated pipe, resistance	Uninsulated pipe, resistance
Indoor	Gas	Gas	A	Uninsulated pipe, gas	Uninsulated pipe, gas
Outdoor	Electric	HPWH	F	Uninsulated pipe, HPWH	Uninsulated pipe, HPWH
Outdoor	Electric	Resistance	D	Uninsulated pipe, resistance	Uninsulated pipe, resistance
Outdoor	Gas	Gas	B	Uninsulated pipe, gas	Uninsulated pipe, gas

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment
Sector	Res - Residential
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing
Building Location	All climate zones, Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.02	Link
Standard - Peak Demand Reduction (kW)	-	
Existing - Electric Savings (kWh/yr)	165.20	Link
Standard - Electric Savings (kWh/yr)	-	
Existing - Gas Savings (therm/yr)	5.11	Link
Standard - Gas Savings (therm/yr)	-	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	-	
Measure Case Costs ($)	29.00	Link
Base Case Costs ($)	-	
Incremental Cost ($)	-	
Effective Useful Life (years)	-	Link
Remaining Useful Life (years)	6.44	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Program eligibility requirements for the addition of insulation to hot water and cold water pipes, within the first three feet of a water heater include: • A minimum of 1-inch of pipe insulation must be added to existing bare pipe • Acceptable types of insulation for hot water pipes include elastomeric foam rubber, polyethylene foam, UV-resistant polyethylene foam, and rigid polyurethane foam • Must be installed by an authorized implementer • Must verify no existing pipe insulation as the existing condition • Unconditioned garage spaces are considered “indoor” installations This measure is not applicable for commercial or industrial applications.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Heat Pump Water Heater, Commercial, Fuel Substitution

https://www.caetrm.com/measure/SWWH027/06/

USE CATEGORY
WH - Service & Domestic Hot Water

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VERSION
SWWH027-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A commercial heat pump water heater meeting the specified uniform energy factor (UEF) requirement replacing a base case natural gas water heater.

Measure Case Capacity (gal)	Measure Case Efficiency (UEF)	Base Case Equipment Type	Base Case Definition	Statewide Measure Offering ID	Measure Offering Description
> 55 to <=75	3.30	Storage	60 Gal	S	Heat pump water heater, > 55 to <= 75 gal, UEF = 3.30 replacing storage natural gas water heater, 60 gal, UEF = 0.61
> 55 to <=75	3.50	Storage	60 Gal	T	Heat pump water heater, > 55 to <= 75 gal, UEF = 3.50 replacing storage natural gas water heater, 60 gal, UEF = 0.61
> 55 to <=75	3.75	Storage	60 Gal	U	Heat pump water heater, > 55 to <= 75 gal, UEF = 3.75 replacing storage natural gas water heater, 60 gal, UEF = 0.61
> 75	3.30	Storage	75 Gal	V	Heat pump water heater, > 75 gal, UEF = 3.30 replacing storage natural gas water heater, 75 gal, UEF = 0.59
> 75	3.50	Storage	75 Gal	W	Heat pump water heater, > 75 gal, UEF = 3.50 replacing storage natural gas water heater, 75 gal, UEF = 0.59
> 75	3.75	Storage	75 Gal	X	Heat pump water heater, > 75 gal, UEF = 3.75 replacing storage natural gas water heater, 75 gal, UEF = 0.59
>= 45 to <= 55	3.30	Storage	30 Gal	Y	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.30 replacing storage natural gas water heater, 30 gal, UEF = 0.60
>= 45 to <= 55	3.30	Storage	40 Gal	Z	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.30 replacing storage natural gas water heater, 40 gal, UEF = 0.64
>= 45 to <= 55	3.30	Storage	50 Gal	AA	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.30 replacing storage natural gas water heater, 50 gal, UEF = 0.63
>= 45 to <= 55	3.30	Tankless	High Draw	AB	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.30 replacing tankless natural gas water heater, High Draw, UEF = 0.81
>= 45 to <= 55	3.50	Storage	30 Gal	AC	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.50 replacing storage natural gas water heater, 30 gal, UEF = 0.60
>= 45 to <= 55	3.50	Storage	40 Gal	AD	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.50 replacing storage natural gas water heater, 40 gal, UEF = 0.64

Measure Case Capacity (gal)	Measure Case Efficiency (UEF)	Base Case Equipment Type	Base Case Definition	Statewide Measure Offering ID	Measure Offering Description
>= 45 to <= 55	3.50	Storage	50 Gal	AE	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.50 replacing storage natural gas water heater, 50 gal, UEF = 0.63
>= 45 to <= 55	3.50	Tankless	High Draw	AF	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.50 replacing tankless natural gas water heater, High Draw, UEF = 0.81
>= 45 to <= 55	3.75	Storage	30 Gal	AG	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.75 replacing storage natural gas water heater, 30 gal, UEF = 0.60
>= 45 to <= 55	3.75	Storage	40 Gal	AH	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.75 replacing storage natural gas water heater, 40 gal, UEF = 0.64
>= 45 to <= 55	3.75	Storage	50 Gal	AI	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.75 replacing storage natural gas water heater, 50 gal, UEF = 0.63
>= 45 to <= 55	3.75	Tankless	High Draw	AJ	Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.75 replacing tankless natural gas water heater, High Draw, UEF = 0.81

Base Case Description

A commercial natural gas storage or instantaneous water heater meeting the minimum federal code UEF requirement.

Measure Case Capacity (gal)	Measure Case Efficiency (UEF)	Base Case Equipment Type	Base Case Definition	Offering ID	Existing Description	Standard Description
> 55 to <=75	3.30	Storage	60 Gal	S	Storage natural gas water heater, 60 gal, UEF = 0.61	Storage natural gas water heater, 60 gal, UEF = 0.61
> 55 to <=75	3.50	Storage	60 Gal	T	Storage natural gas water heater, 60 gal, UEF = 0.61	Storage natural gas water heater, 60 gal, UEF = 0.61
> 55 to <=75	3.75	Storage	60 Gal	U	Storage natural gas water heater, 60 gal, UEF = 0.61	Storage natural gas water heater, 60 gal, UEF = 0.61
> 75	3.30	Storage	75 Gal	V	Storage natural gas water heater, 75 gal, UEF = 0.59	Storage natural gas water heater, 75 gal, UEF = 0.59
> 75	3.50	Storage	75 Gal	W	Storage natural gas water heater, 75 gal, UEF = 0.59	Storage natural gas water heater, 75 gal, UEF = 0.59
> 75	3.75	Storage	75 Gal	X	Storage natural gas water heater, 75 gal, UEF = 0.59	Storage natural gas water heater, 75 gal, UEF = 0.59
>= 45 to <= 55	3.30	Storage	30 Gal	Y	Storage natural gas water heater, 30 gal, UEF = 0.60	Storage natural gas water heater, 30 gal, UEF = 0.60
>= 45 to <= 55	3.30	Storage	40 Gal	Z	Storage natural gas water heater, 40 gal, UEF = 0.64	Storage natural gas water heater, 40 gal, UEF = 0.64
>= 45 to <= 55	3.30	Storage	50 Gal	AA	Storage natural gas water heater, 50 gal, UEF = 0.63	Storage natural gas water heater, 50 gal, UEF = 0.63
>= 45 to <= 55	3.30	Tankless	High Draw	AB	Tankless natural gas water heater, high draw, UEF = 0.81	Tankless natural gas water heater, high draw, UEF = 0.81
>= 45 to <= 55	3.50	Storage	30 Gal	AC	Storage natural gas water heater, 30 gal, UEF = 0.60	Storage natural gas water heater, 30 gal, UEF = 0.60
>= 45 to <= 55	3.50	Storage	40 Gal	AD	Storage natural gas water heater, 40 gal, UEF = 0.64	Storage natural gas water heater, 40 gal, UEF = 0.64
>= 45 to <= 55	3.50	Storage	50 Gal	AE	Storage natural gas water heater, 50 gal, UEF = 0.63	Storage natural gas water heater, 50 gal, UEF = 0.63
>= 45 to <= 55	3.50	Tankless	High Draw	AF	Tankless natural gas water heater, high draw, UEF = 0.81	Tankless natural gas water heater, high draw, UEF = 0.81
>= 45 to <= 55	3.75	Storage	30 Gal	AG	Storage natural gas water heater, 30 gal, UEF = 0.60	Storage natural gas water heater, 30 gal, UEF = 0.60

Measure Case Capacity (gal)	Measure Case Efficiency (UEF)	Base Case Equipment Type	Base Case Definition	Offering ID	Existing Description	Standard Description
>= 45 to <= 55	3.75	Storage	40 Gal	AH	Storage natural gas water heater, 40 gal, UEF = 0.64	Storage natural gas water heater, 40 gal, UEF = 0.64
>= 45 to <= 55	3.75	Storage	50 Gal	AI	Storage natural gas water heater, 50 gal, UEF = 0.63	Storage natural gas water heater, 50 gal, UEF = 0.63
>= 45 to <= 55	3.75	Tankless	High Draw	AJ	Tankless natural gas water heater, high draw, UEF = 0.81	Tankless natural gas water heater, high draw, UEF = 0.81

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, HGR - Hotel Guest Room, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-12,712.20	Link
Standard - Electric Savings (kWh/yr)	-12,708.76	
Existing - Gas Savings (therm/yr)	1,357.82	Link
Standard - Gas Savings (therm/yr)	1,357.39	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	2,876.64	Link
Base Case Costs ($)	1,650.51	
Incremental Cost ($)	1,226.13	
Effective Useful Life (years)	13.00	Link
Remaining Useful Life (years)	4.72	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
The heat pump water heater must meet the storage capacity and minimum efficiency requirements. In order to accommodate upsizing projects, the new heat pump water heater storage capacity may exceed the measure case storage capacity ranges that are outlined in the Measure Case Description. For example, for offering AA “Heat pump water heater, >= 45 to <= 55 gal, UEF = 3.30 replacing storage natural gas water heater, 50 gal, UEF = 0.63”, a new heat pump water heater of 60 or 80 gallons may be installed if needed. Projects where multiple heat pump water heaters are replacing a different quantity of existing natural gas water heaters should refer to SWWH028. Split-system heat pump unit assemblies are eligible and shall have the same eligibility and data collection requirements as integrated tanked systems. However, they shall be treated as a single product with a single product efficiency and storage volume. Efficiency and performance ratings for the entire package shall be provided by the manufacturer. To accommodate baseline water heater storage capacities that do not exactly match the nominal storage capacity, the following shows the range of rated storage capacities that are eligible for each nominal storage capacity listed for baseline equipment. Furthermore, tankless natural gas baseline water heaters of any draw pattern (very small, low, medium, or high) are eligible as baselines. • 30 gal: 26 gal - 35 gal • 40 gal: 36 gal - 45 gal • 50 gal: 46 gal - 55 gal • 60 gal: 56 gal - 69 gal • 75 gal: 70 gal - 89 gal Partial retrofits of existing water heating systems are eligible (i.e. replacing only some natural gas water heaters in a system with heat pumps, but not all) as long as the HPWHs are not backup/redundant systems and the natural gas water heaters that are being replaced are fully demolished. The following are ineligible: • Non-domestic hot water uses, such as space conditioning, industrial (process) loads, and pools and/or spas applications. Combination systems that serve domestic hot water and space heating are not eligible. • Redundancy (backup) systems. However, heat pumps that are staged based on load or set up in a lead-lag configuration are eligible. • For AR offerings, replacement of high efficiency condensing systems
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
This is a fuel substitution measure.

Large Heat Pump Water Heater, Commercial and Multifamily, Fuel Substitution

https://www.caetrm.com/measure/SWWH028/08/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH028-08

END DATE
10/5/2026

Measure Case and Base Case Description:

Offering ID

A large commercial heat pump (HP) water heater (WH) or central heat pump water heating system, meeting the specified coefficient of performance (COP) or uniform energy factor (UEF) requirement, replacing a base case natural gas water heater.

- Commercial WHs must have storage volume ≥75 gallons. WHs with <100 gallons are rated by UEF, and WHs with ≥100 gallons are rated using COP.
- For multifamily, smaller multifamily central HPWH installations use split HP systems with <150 kBtu/hr. To accommodate these smaller systems and since savings are normalized by heating output capacity (kBtu/hr), there is no minimum system heating capacity requirement for the multifamily offerings.

Measure Case Efficiency	Offering Type	Base Case Equipment Type	Base Case Definition	Statewide Measure Offering ID	Measure Offering Description
3.0 COP	Multifamily	Central Boiler	> 150 kBtu/hr	I	Multifamily central heat pump water heater system > 150 kBtu/hr output capacity (COP = 3.00) replacing a central gas boiler > 150 kBtu/hr, Et = 0.84
3.0 COP	Multifamily	Central Storage	> 75 kBtu/hr	J	Multifamily central heat pump water heater system > 150 kBtu/hr output capacity (COP = 3.00) replacing a central gas storage water heater > 75 kBtu/hr, Et = 0.84

Measure Case Efficiency	Offering Type	Base Case Equipment Type	Base Case Definition	Statewide Measure Offering ID	Measure Offering Description
3.0 UEF	Commercial	Storage	80 Gal	K	Commercial heat pump water heater, 75 <= to < 100 gal, UEF = 3.0 replacing large natural gas, storage water heater, 80 gal, Et = 0.80
4.3 COP	Commercial	Instantaneous	> 200 kBtu/hr	N	Commercial heat pump water heater, >= 100 gal, COP = 4.3 replacing instantaneous natural gas water heater, > 200 kBtu/hr, Et = 0.80
4.3 COP	Commercial	Instantaneous	76 - 200 kBtu/hr	M	Commercial heat pump water heater, >= 100 gal, COP = 4.3 replacing instantaneous natural gas water heater, 76 to 200 kBtu/hr, Et = 0.80
4.3 COP	Commercial	Storage	100 Gal	L	Commercial heat pump water heater, >= 100 gal, COP = 4.3 replacing large natural gas, storage water heater, 100 gal, Et = 0.80

Base Case Description

A large natural gas storage hot water heater or boiler systems, meeting the minimum federal code thermal efficiency (Et) requirement for the capacity type and range.

Measure Case Efficiency	Offering Type	Base Case Equipment Type	Base Case Definition	Statewide Measure Offering ID	Existing Description	Standard Description
3.0 COP	Multifamily	Central Boiler	> 150 kBtu/hr	I	Central gas boiler, > 150 kBtu/hr, Et = 0.84	Central gas boiler, > 150 kBtu/hr, Et = 0.84
3.0 COP	Multifamily	Central Storage	> 75 kBtu/hr	J	Central storage gas water heater, > 75 kBtu/hr, Et = 0.84	Central storage gas water heater, > 75 kBtu/hr, Et = 0.84
3.0 UEF	Commercial	Storage	80 Gal	K	Storage natural gas water heater, 80 gal, Et = 0.80	Storage natural gas water heater, 80 gal, Et = 0.80
4.3 COP	Commercial	Instantaneous	> 200 kBtu/hr	N	Instantaneous natural gas water heater, > 200 kBtu/hr, Et = 0.80	Instantaneous natural gas water heater, > 200 kBtu/hr, Et = 0.80
4.3 COP	Commercial	Instantaneous	76 - 200 kBtu/hr	M	Instantaneous natural gas water heater, 76 to 200 kBtu/hr, Et = 0.80	Instantaneous natural gas water heater, 76 to 200 kBtu/hr, Et = 0.80
4.3 COP	Commercial	Storage	100 Gal	L	Storage natural gas water heater, 100 gal, Et = 0.80	Storage natural gas water heater, 100 gal, Et = 0.80

Applicable Parameters:

Parameters	Labels
Measure Application Type	AR - Accelerated Replacement, NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial, Res - Residential
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUD - University Dormitory, EUn - Education - University, Gro - Grocery, HGR - Hotel Guest Room, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MFm - Residential Multi-family, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	CapOut-kBtuh - kBtuh of output capacity
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg, DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.00	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-215.14	Link
Standard - Electric Savings (kWh/yr)	-215.05	
Existing - Gas Savings (therm/yr)	24.83	Link
Standard - Gas Savings (therm/yr)	24.82	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	260.23	Link
Base Case Costs ($)	93.60	
Incremental Cost ($)	166.63	
Effective Useful Life (years)	13.14	Link
Remaining Useful Life (years)	5.54	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions

The heat pump (HP) water heater (WH) must meet the storage capacity, heating output capacity (commercial only), and minimum efficiency requirements.

Integrated, split system, and standalone (i.e. instantaneous or tankless) heat pumps are eligible. Tankless and split HPWH technologies should claim offerings based on their specific efficiency (UEF or COP) and connected storage volumes, and the baseline system eligibility.

Measure installation shall fully comply with all state and local requirements and regulations, such as the National Electric Code and California Plumbing Code, Electric Code, and Energy Standards.

Partial retrofits of existing water heating systems are eligible (i.e. replacing only some natural gas water heaters in a system with heat pumps, but not all) as long as the HPWHs are not backup/redundant systems and the natural gas water heaters that are being replaced are fully demolished.

The following are ineligible:

- Non-domestic hot water uses, such as space conditioning, industrial (process) loads, and pools and/or spas applications
- Combination systems that serve domestic hot water and space heating.
- Baseline systems that use steam boilers
- Heat pump systems with >1,000 kBtu/hr total output heating capacity. Required ancillary heating equipment such as electric resistance or temperature maintenance or swing tanks do not count towards this limit. If the building has multiple separate hot water system loops, the limit should be applied to each individual loop.
- Redundancy (backup) systems. However, HPWHs that are staged based on load or set up in a lead-lag configuration are eligible.
- For AR offerings, high efficiency condensing systems baseline systems.

Quality Assurance: Design, Installation, Commissioning, and Operation

Verify that the new unit is properly installed and commissioned.

Verify that the new unit meets or exceeds the required efficiency in the Offering ID table. COP values should be taken directly from manufacturer specification sheets or reputable databases such as ENERGY STAR®, AHRI, or the California Energy Commission Appliance Database. If there are no published COP values, divide the published values of thermal efficiency or recovery efficiency by 100 to estimate COP.

Central domestic hot water systems often consist of one or more HPs connected to ≥1 storage tanks. System efficiencies, capacities, and other operating parameters differ from their individual components and vary based on system configurations and local conditions; this data is often not readily available. Therefore, the COP at full/highest output capacity of the individual HP units should be used to verify eligibility (DOE 10 CFR 431 Subpart G). Measure offering selections, based on storage volume and/or heating capacity, and incentivized output capacity should be calculated using the total number of eligible HPWHs and eligible storage volume of the system. Output capacity for claims shall exclude any capacity derived from electric resistance heating elements.

Important Notes

This is a fuel substitution measure.

Multifamily measures were developed in EnergyPlus and are defined using heat pump water heater heating output capacity (kBtu/hr) and coefficient of performance (COP). Commercial measures were developed in the DEER Water Heater Calculator v5.1 and are characterized by storage capacity (in gallons) and either the uniform energy factor (UEF) (<100 gallons) or coefficient of performance (COP) (≥100 gallons).

Heat Pump Water Heater, Commercial

https://www.caetrm.com/measure/SWWH031/06/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH031-06

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An efficient commercial heat pump water heater meeting the specified requirement. For units that are <100 gallons, the efficiency is rated using uniform energy factor (UEF). For units that are greater than ≥100gallons, the efficiency is rated using coefficient of performance (COP).

Base Case Description

An electric storage water heater with a storage volume of 30, 40, or 50 gallons or a storage heat pump water heater with a storage volume of 60 or 75 gallons that meets applicable Code of Federal Regulations (CFR) standards.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Ind - Industrial
Building Type	Asm - Assembly, Com - Commercial, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUn - Education - University, Gro - Grocery, HGR - Hotel Guest Room, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, MBT - Manufacturing Biotech, MLI - Manufacturing Light Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	1.24	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	10,500.48	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	6,588.65	Link
Base Case Costs ($)	3,836.74	
Incremental Cost ($)	2,751.91	
Effective Useful Life (years)	13.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
The product must be in the storage capacity range and the efficiency (UEF or COP) must meet or exceed the listed efficiency in the measure offering ID description. Existing gas base case equipment must be disposed of. Split-system heat pump products are eligible. However, they shall be treated as a single product with a single product efficiency and storage volume. Efficiency and performance ratings for the entire package shall be provided by the manufacturer. This measure is only applicable to 1-for-1 replacements; this is not a fuel substitution measure. Larger heat pump water heater offerings with nominal capacities in the 65 and 80 gallons categories use heat pump water heater baseline assumptions in the calculations. Therefore, these offerings can be used to replace less efficient base case equipment, such as electric resistance storage water heaters, since the savings are conservative. To accommodate baseline water heater storage capacities that do not exactly match the nominal storage capacity, the following shows the range of rated storage capacity that are eligible for each nominal storage capacity listed for baseline equipment. • 30 gal: 26 gal – 35 gal • 40 gal: 36 gal - 45 gal • 50 gal: 46 gal - 55 gal • 60 gal: 56 gal - 69 gal • 75 gal: 70 gal - 89 gal The following are ineligible: • Replacement of an instantaneous or tankless water heater. • A new heat pump water heater with a storage capacity of less than 45 gallons. • Replacement of non-electric baseline equipment. For replacing existing gas water heating system, see SWWH027. • Replacing a single existing water heater with multiple heat pump water heaters
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
None

Solar Thermal Water Heating System, Residential

https://www.caetrm.com/measure/SWWH032/03/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH032-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

An ENERGY STAR® solar water heating system, with a solar uniform energy factor (SUEF) ≥1.8 for gas backup, that will offset the use of a gas-fired domestic water heater.

Measure Case Equipment Type	Base Case Equipment Type	Statewide Measure Offering ID	Measure Offering Description
Storage	Storage	A	Solar thermal water heating system with storage gas backup, replacing gas storage water heater
Tankless	Storage	B	Solar thermal water heating system with tankless gas backup, replacing gas storage water heater
Tankless	Tankless	C	Solar thermal water heating system with tankless gas backup, replacing gas tankless water heater

Base Case Description

A standard efficiency storage or tankless gas water heater meeting the federal code minimum uniform energy factor (UEF).

Measure Case Equipment Type	Base Case Equipment Type	Statewide Measure Offering ID	Existing Description	Standard Description
Storage	Storage	A	Storage water heater, 50 gal, <= 75 kBtu/hr - MD, UEF = 0.56	Storage water heater, 50 gal, <= 75 kBtu/hr - MD, UEF = 0.56
Tankless	Storage	B	Storage water heater, 50 gal, <= 75 kBtu/hr - MD, UEF = 0.56	Storage water heater, 50 gal, <= 75 kBtu/hr - MD, UEF = 0.56
Tankless	Tankless	C	Instant water heater, <200 kBtu/hr, UEF = 0.81	Instant water heater, <200 kBtu/hr, UEF = 0.81

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	SFm - Residential Single Family
Building Vintage	Ex - Existing
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Each - installation of technology
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-0.01	Link
Standard - Peak Demand Reduction (kW)	-0.01	
Existing - Electric Savings (kWh/yr)	-118.56	Link
Standard - Electric Savings (kWh/yr)	-117.40	
Existing - Gas Savings (therm/yr)	87.02	Link
Standard - Gas Savings (therm/yr)	114.60	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	8,038.51	Link
Base Case Costs ($)	1,285.76	
Incremental Cost ($)	7,301.76	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	15.00	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Eligible products must meet the required specifications. Systems must conform to the manufacturer specifications and with all applicable electrical, plumbing, and building codes and standards. Permits are required for all solar water heating (SWH) system installations. All systems must be installed in compliance with the Solar Rating & Certification Corporation (ICC-SRCC™) OG-300 or the International Association of Plumbing & Mechanical Officials (IAPMO) standards and guidelines. Solar water heating systems used for space or pool heating are not eligible. Solar water heating systems are not eligible for high efficiency water heater rebates for a backup water heater.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
None

Gas Heat Pump Water Heater, Multifamily

https://www.caetrm.com/measure/SWWH033/03/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH033-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A gas absorption heat pump (GAHP) water heater system, with coefficients of performance (COP) ≥1.25 at standard conditions (70 °F outdoor air and 130 °F outlet temperature), sized to satisfy the base load of the domestic hot water (DHW) system and improve the efficiency of the conventional gas-fired domestic water heating system.

Statewide Measure Offering ID	Measure Offering Description
A	Gas absorption heat pump added to DHW system (COP => 1.25)

Base Case Description

A natural gas standard efficiency centralized hot water boiler meeting the federal code minimum thermal efficiency (TE).

Statewide Measure Offering ID	Existing Description	Standard Description
A	Hot water boiler => 300 kBtu/hr, 84% TE	Hot water boiler => 300 kBtu/hr, 84% TE

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Res - Residential
Building Type	MFm - Residential Multi-family
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Cap-kBTUh - kBTUh of input capacity
Electric Impact Profile ID	DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	0.00	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	40.21	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	147.06	Link
Base Case Costs ($)	16.22	
Incremental Cost ($)	130.84	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Eligible products must conform to manufacturers' specifications and with all applicable mechanical, plumbing and building codes and standards. Sizing the gas absorption heat pump (GAHP) for the domestic hot water (DHW) heating load is extremely important for the performance of the system. The sizing of the GAHP system will affect the energy output, response time and temperature differential across the heat pumps. In this measure the GAHP is sized to serve the base load of the building, not the whole building load. • The gas heat pump water heater must operate as the primary or a baseload equipment and supplemented by an existing DHW boiler(s) operating as a peak shaving unit in this hybrid system (for measure case boiler & GAHP heating rates.) Baseload is defined as the constant water heater demand due to environmental losses and times of low hot water use. In general, the gas heat pump should not have output capacity larger than half of the existing boiler which will serve as the peak shaving unit. • The intermittent nature of DHW loads provided undesirable conditions for the heat pump performance due to constant cycling of the hot water temperature differential. • One source used for selecting a DHW system in multifamily building is the 2019 ASHRAE Applications textbook. • Multifamily buildings smaller than 20 apartments would not be applicable due to their lower hot water demand. All system components (gas heat pump, piping, valves, tanks, pumps, insulation, and controllers) must be new and must not have been previously placed in service in any other location or for any other application. Rebuilt, refurbished, or relocated equipment is not eligible to receive incentives. The efficiency requirement of COP ≥1.25 is at standard conditions, defined as 70°F outdoor air temperature and 130°F outlet temperature.
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify that new unit meets or exceeds the required efficiency in the Offering ID table. Verify that new unit is properly installed and commissioned.
Important Notes
None

Solar Thermal Water Heating System, Commercial and Multifamily

https://www.caetrm.com/measure/SWWH034/03/

USE CATEGORY
WH - Service & Domestic Hot Water

EFFECTIVE START DATE
1/1/2026

VERSION
SWWH034-03

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A multi-panel forced circulation solar water heating system that will offset the use of a natural gas domestic water heater.

Statewide Measure Offering ID	Measure Offering Description
B	Solar thermal water heating system

Base Case Description

A central storage gas water heater meeting the federal code thermal efficiency (TE) requirement of 82%.

Statewide Measure Offering ID	Existing Description	Standard Description
B	Central storage gas water heater, 82% TE	Central storage gas water heater, 82% TE

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Com - Commercial, Res - Residential
Building Type	EPr - Education - Primary School, ESe - Education - Secondary School, EUD - University Dormitory, Htl - Lodging - Hotel, MFmCmn - Residential Multi-family Common Area, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, RtS - Retail - Small
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed, Mid-Distr - Incentivizes an energy-efficient technology through a program administrator partnership with the distributor, Mid-Retail - Incentivizes an energy-efficient technology through a program administrator partnership with the retailer, Up-Manuf - Incentivizes an energy-efficient technology through a program administrator partnership with the manufacturer
Normalized Unit	Area-ft2 - square feet of technology
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg, DEER:Res_ClothesDishWasher
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	-0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	-3.99	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	5.57	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	207.52	Link
Base Case Costs ($)	0.00	
Incremental Cost ($)	207.52	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWWH_Summary.xlsx

Others:

Program Exclusions
Eligible products must conform to the manufacturer specifications and with all applicable electrical, plumbing, and building codes and standards. Permits are required for all solar water heating (SWH) system installations. All systems must be installed in compliance with the Solar Rating & Certification Corporation (ICC-SRCC™) or the International Association of Plumbing & Mechanical Officials (IAPMO) standards and guidelines.
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Water Pump Upgrade

https://www.caetrm.com/measure/SWWP004/04/

USE CATEGORY
WP - Water Pumping / Irrigation

EFFECTIVE START DATE
9/1/2025

VERSION
SWWP004-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

A clean or wastewater pump meeting the specified pump energy index (PEI). PEI tiers were set by an incremental improvement of 0.02, based on the PEI distribution of eligible pumps in the Hydraulic Institute (HI) database. Offerings are characterized by the pump horsepower, PEI, and load type (variable or constant).

Base Case Description

A standard clean or wastewater pump meeting the specified PEI.

(The Offering ID and Base Case Descriptions tables can be viewed the "Oversized Offering ID and Base Case Descriptions Tables" file)

Applicable Parameters:

Parameters	Labels
Measure Application Type	NC - New Construction, NR - Normal Replacement (includes Replace on Burnout)
Sector	Ag - Agricultural, Com - Commercial, Ind - Industrial
Building Type	AgOth - Other Agricultural, Asm - Assembly, CRe - Municipal - City Parks/Recreations, Cnc - Health/Medical - Clinics, Com - Commercial, Dat - Data Center, ECC - Education - Community College, EPr - Education - Primary School, ERC - Education - Relocatable Classroom, ESe - Education - Secondary School, EUD - University Dormitory, EUn - Education - University, Fhc - Fitness Center - Private Health Club, Gro - Grocery, Gst - Lodging - Guest Room, HGR - Hotel Guest Room, Hsp - Health/Medical - Hospital, Htl - Lodging - Hotel, IndOth - Other Industrial, Mtl - Lodging - Motel, Nrs - Health/Medical - Nursing Home, OfL - Office - Large, OfS - Office - Small, RFF - Restaurant - Fast-Food, RSD - Restaurant - Sit-Down, Rt3 - Retail - Multistory Large, RtL - Retail - Single-Story Large, RtS - Retail - Small, SCn - Storage - Conditioned, SUn - Storage - Unconditioned, Sup - Supermarket, WRf - Warehouse - Refrigerated
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	All climate zones
Delivery Type	DnDeemDI - Downstream deemed direct install, DnDeemed - Downstream deemed, UpDeemed - Upstream deemed
Normalized Unit	Rated-HP - nameplate HP
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	-	Link
Standard - Peak Demand Reduction (kW)	0.00	
Existing - Electric Savings (kWh/yr)	-	Link
Standard - Electric Savings (kWh/yr)	87.74	
Existing - Gas Savings (therm/yr)	-	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	-	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	929.70	Link
Base Case Costs ($)	858.61	
Incremental Cost ($)	71.09	
Effective Useful Life (years)	15.00	Link
Remaining Useful Life (years)	-	

Streamlined Permutations: SWWP_Summary.xlsx

Others:

Program Exclusions
Only clean or wastewater water pumps that are intended for agricultural, commercial, and industrial sectors with a nominal pump motor horsepower rating of ≤250 and meeting the PEI requirements are eligible. The PEI should be confirmed on the Hydraulic Institute (HI) database or the Department of Energy (DOE) Pump Compliance Certification Database. Any of the following clean water rotodynamic pump classes are eligible: • End Suction Frame Mount (ESFM) • End Suction Close Coupled (ESCC) • In-line (IL) • Radially Split multi-stage vertical in-line diffuser casing (RSV) • Submersible Turbine (ST)
Quality Assurance: Design, Installation, Commissioning, and Operation
None
Important Notes
None

Variable Frequency Drive on Irrigation Pump

https://www.caetrm.com/measure/SWWP005/04/

USE CATEGORY
WP - Water Pumping / Irrigation

EFFECTIVE START DATE
1/1/2026

VERSION
SWWP005-04

END DATE
12/31/2028

Measure Case and Base Case Description:

Offering ID

Installation of a variable frequency drive (VFD) to an agricultural irrigation well pump (≤600 hp) or booster pump (≤150 hp) in place of throttling the flow.

A “Tier 1 basic VFD systems”, which does not have any minimum performance standard requirement, was covered in the SWWP002 measure. In 2017, Pacific Gas and Electric Company (PG&E) contracted the Irrigation Training & Research Center (ITRC) at California Polytechnic State University (Cal Poly) to develop the technical specifications requirements for an enhanced VFD. A Mid-level Tier 2 and Advanced Tier 3 were created based on ITRC VFD *(Variable Frequency Drive) Specifications for On-Farm Pumps* report. The Tier 1 offerings were added to this measure from SWWP002, which will then be sunsetted starting in 2026.

Tier	Pump Type	Pump Size (HP)	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
Tier 1	Booster	<=150	AOE	Q	FarmIrrig-IrrifSys-Tier 1 basic-tier specification VFD on Ag booster pumps <= 150 hp, AOE
Tier 1	Booster	<=150	NC	R	FarmIrrig-IrrifSys-Tier 1 basic-tier specification VFD on Ag booster pumps <= 150 hp, NC
Tier 1	Well	<=300	AOE	S	FarmIrrig-IrrifSys-Tier 1 basic-tier specification VFD on Ag well pumps <= 300 hp, AOE
Tier 1	Well	<=300	NC	T	FarmIrrig-IrrifSys-Tier 1 basic-tier specification VFD on Ag well pumps <= 300 hp, NC
Tier 2	Booster	<= 75	AOE	K	FarmIrrig-IrrifSys-Tier 2 mid-tier specification VFD on Ag booster pumps <= 75 hp, AOE
Tier 2	Booster	<= 75	NC	C	FarmIrrig-IrrifSys-Tier 2 mid-tier specification VFD on Ag booster pumps <= 75 hp, NC
Tier 2	Booster	> 75 to <= 150	AOE	L	FarmIrrig-IrrifSys-Tier 2 mid-tier specification VFD on Ag booster pumps > 75 hp to <= 150 hp, AOE
Tier 2	Booster	> 75 to <= 150	NC	D	FarmIrrig-IrrifSys-Tier 2 mid-tier specification VFD on Ag booster pumps > 75 hp to <= 150 hp, NC
Tier 2	Well	<= 75	AOE	I	FarmIrrig-IrrifSys-Tier 2 mid-tier specification VFD on Ag well pumps <= 75 hp, AOE
Tier 2	Well	<= 75	NC	A	FarmIrrig-IrrifSys-Tier 2 mid-tier specification VFD on Ag well pumps <= 75 hp, NC

Tier	Pump Type	Pump Size (HP)	MeasAppType	Statewide Measure Offering ID	Measure Offering Description
Tier 2	Well	> 75 to <= 600	AOE	J	FarmIrrig-IrrifSys-Tier 2 mid-tier specification VFD on Ag well pumps > 75 hp to <= 600 hp, AOE
Tier 2	Well	> 75 to <= 600	NC	B	FarmIrrig-IrrifSys-Tier 2 mid-tier specification VFD on Ag well pumps > 75 hp to <= 600 hp, NC
Tier 3	Booster	<= 75	AOE	O	FarmIrrig-IrrifSys-Tier 3 enhanced specification VFD on Ag booster pumps <= 75 hp, AOE
Tier 3	Booster	<= 75	NC	G	FarmIrrig-IrrifSys-Tier 3 enhanced specification VFD on Ag booster pumps <= 75 hp, NC
Tier 3	Booster	> 75 to <= 150	AOE	P	FarmIrrig-IrrifSys-Tier 3 enhanced specification VFD on Ag booster pumps > 75 hp to <= 150 hp, AOE
Tier 3	Booster	> 75 to <= 150	NC	H	FarmIrrig-IrrifSys-Tier 3 enhanced specification VFD on Ag booster pumps > 75 hp to <= 150 hp, NC
Tier 3	Well	<= 75	AOE	M	FarmIrrig-IrrifSys-Tier 3 enhanced specification VFD on Ag well pumps <= 75 hp, AOE
Tier 3	Well	<= 75	NC	E	FarmIrrig-IrrifSys-Tier 3 enhanced specification VFD on Ag well pumps <= 75 hp, NC
Tier 3	Well	> 75 to <= 600	AOE	N	FarmIrrig-IrrifSys-Tier 3 enhanced specification VFD on Ag well pumps > 75 hp to <= 600 hp, AOE
Tier 3	Well	> 75 to <= 600	NC	F	FarmIrrig-IrrifSys-Tier 3 enhanced specification VFD on Ag well pumps > 75 hp to <= 600 hp, NC

Base Case Description

A constant speed well or booster agricultural pump that is controlled by throttling the flow based on irrigation needs.

Tier	Pump Type	Pump Size (HP)	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Tier 1	Booster	<=150	AOE	Q	Ag booster pump operate with throttle control and has soft starter	Ag booster pump operate with throttle control and has soft starter
Tier 1	Booster	<=150	NC	R	Ag booster pump operate with throttle control and has soft starter	Ag booster pump operate with throttle control and has soft starter
Tier 1	Well	<=300	AOE	S	Ag well pump operate with throttle control and has soft starter	Ag well pump operate with throttle control and has soft starter
Tier 1	Well	<=300	NC	T	Ag well pump operate with throttle control and has soft starter	Ag well pump operate with throttle control and has soft starter
Tier 2	Booster	<= 75	AOE	K	Ag booster pump operate with throttle control	Ag booster pump operate with throttle control
Tier 2	Booster	<= 75	NC	C	Ag booster pump operate with throttle control	Ag booster pump operate with throttle control
Tier 2	Booster	> 75 to <= 150	AOE	L	Ag booster pump operate with throttle control and has soft starter	Ag booster pump operate with throttle control and has soft starter
Tier 2	Booster	> 75 to <= 150	NC	D	Ag booster pump operate with throttle control and has soft starter	Ag booster pump operate with throttle control and has soft starter

Tier	Pump Type	Pump Size (HP)	MeasAppType	Statewide Measure Offering ID	Existing Description	Standard Description
Tier 2	Well	<= 75	AOE	I	Ag well pump operate with throttle control	Ag well pump operate with throttle control
Tier 2	Well	<= 75	NC	A	Ag well pump operate with throttle control	Ag well pump operate with throttle control
Tier 2	Well	> 75 to <= 600	AOE	J	Ag well pump operate with throttle control and has soft starter	Ag well pump operate with throttle control and has soft starter
Tier 2	Well	> 75 to <= 600	NC	B	Ag well pump operate with throttle control and has soft starter	Ag well pump operate with throttle control and has soft starter
Tier 3	Booster	<= 75	AOE	O	Ag booster pump operate with throttle control	Ag booster pump operate with throttle control
Tier 3	Booster	<= 75	NC	G	Ag booster pump operate with throttle control	Ag booster pump operate with throttle control
Tier 3	Booster	> 75 to <= 150	AOE	P	Ag booster pump operate with throttle control and has soft starter	Ag booster pump operate with throttle control and has soft starter
Tier 3	Booster	> 75 to <= 150	NC	H	Ag booster pump operate with throttle control and has soft starter	Ag booster pump operate with throttle control and has soft starter
Tier 3	Well	<= 75	AOE	M	Ag well pump operate with throttle control	Ag well pump operate with throttle control
Tier 3	Well	<= 75	NC	E	Ag well pump operate with throttle control	Ag well pump operate with throttle control
Tier 3	Well	> 75 to <= 600	AOE	N	Ag well pump operate with throttle control and has soft starter	Ag well pump operate with throttle control and has soft starter
Tier 3	Well	> 75 to <= 600	NC	F	Ag well pump operate with throttle control and has soft starter	Ag well pump operate with throttle control and has soft starter

Applicable Parameters:

Parameters	Labels
Measure Application Type	AOE - Add-on Equipment, NC - New Construction
Sector	Ag - Agricultural, Com - Commercial
Building Type	Any - All Subsectors
Building Vintage	Ex - Existing \ Median Age, New - New Construction
Building Location	Any - Any Location
Delivery Type	DI - Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer, Down - Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed
Normalized Unit	Rated-HP - nameplate HP
Electric Impact Profile ID	DEER:Indoor_CFL_Ltg
Gas Impact Profile ID	Annual

Average Impact:

	Average Value	Methodology
Existing - Peak Demand Reduction (kW)	0.03	Link
Standard - Peak Demand Reduction (kW)	0.03	
Existing - Electric Savings (kWh/yr)	179.80	Link
Standard - Electric Savings (kWh/yr)	179.80	
Existing - Gas Savings (therm/yr)	0.00	Link
Standard - Gas Savings (therm/yr)	0.00	
Existing - Water Savings (gal/yr)	0.00	Link
Standard - Water Savings (gal/yr)	0.00	
Measure Case Costs ($)	327.52	Link
Base Case Costs ($)	73.88	
Incremental Cost ($)	253.64	
Effective Useful Life (years)	10.00	Link
Remaining Useful Life (years)	10.00	

Streamlined Permutations: SWWP_Summary.xlsx

Others:

Program Exclusions
The customer must install a VFD system on an existing electrically operated agricultural booster or well pump motor installed on site or install VFDs on new pumps or existing pumps where the horsepower of the serving motor is increased (added load). The pumping application must be able to vary the flow/pressure of the pump (i.e. throttle valve, control valve, etc.) and the VFD must be used to adjust operation of pump to meet flow/pressure requirements, not simply as a soft starter, or for cavitation control. The VFD must be installed on a pressurized irrigation system (no flood irrigation). The pumping application must operate for a minimum of 1,000 hours per year. Tier 1 offerings must meet the specifications set forth by IEEE Standard 519TM-2014 or newer. IEEE Standard 519TM-2021 was approved in 2022 but is not a requirement for this measure. Tier 2 and Tier 3 calculation studies were performed using IEEE Standard 519TM-2014, so Tier 1 requirements are being maintained to match the other measure cases. Tier 2 must conform to the requirements outlined in the ITRC Report *Variable Frequency Drive (VFD) Specifications for On-Farm Pumps*, except for the requirement specified in item 3.E.7c in section "3.E.7 Cooling" of the Design Specifications. Tier 3 must conform to the requirements outlined in the ITRC Report *Variable Frequency Drive (VFD) Specifications for Agricultural Irrigation Pumping*. The VFD is not eligible for the following pumping applications: • A well pump used to fill a reservoir • A well pump discharging directly into a canal • A mixed flow pump (high volume, low head)
Quality Assurance: Design, Installation, Commissioning, and Operation
Verify the preexisting fan or pump system. Determine if the application of VFD control is appropriate. Ensure that the VFD is installed correctly, and that pump speed is controlled appropriately.
Important Notes
None

KEY TERMINOLOGY

This section is organized alphabetically and is intended to help TRM users better understand each data specification field used to describe the possible variations of a measure (i.e., measure permutations). Definitions in this section also include important terms used throughout this TRM document.

Note: The section may include tables synced in eTRM from other data sources; these tables may have changed since publication of this TRM version. Please refer to eTRM | CPUC Support Tables for the most up-to-date versions.

AOE Years: An estimate of the life of an add-on equipment (AOE) measure application type. It is equal to "First Baseline – Life Cycle", calculated for AOE, which is either:

- The lower of the "EUL Years" of the add-on equipment or the "RUL Years" of the host equipment if the AOE is typically replaced at the same time as its host equipment/proxy
- Or the full "EUL Years" of the add-on equipment if the AOE is not typically replaced at the same time as its host equipment or host proxy.

In the eTRM, to accommodate the cost-effectiveness tool calculation logic, the AOE Years are reported under the "EUL Years" field. In this TRM, to keep the existing baseline and standard baseline distinct, AOE Years are extracted and placed in the RUL Years field. See "EUL Years" and "RUL Years".

Building HVAC: Field describes if the measure savings are applicable to a specific type of HVAC system. If a weighted average approach is followed, special IDs designate the weighted average residential building HVAC ('rWtd') or commercial building HVAC ('cWtd').

The first letter of each HVAC type indicates the applicable customer sector — 'a' for agricultural, 'c' for commercial, and 'r' for residential.

HVAC	Description	HVAC	Description	HVAC	Description
aGF	overhead gas furnace	cPTAC	packaged terminal air conditioner	rDXHW	central AC with hydronic heating
Any	Any HVAC type	cPTHP	packaged terminal heat pump	rDXOH	central AC with "Other Heat" source, such as propane
aRH	radiant heat	cPVVE	packaged variable air volume system with electric heat	rDXWP	central AC with water-source heat pump
cAVVG	built-up VAV system with air cooled chiller and gas boiler	cPVVG	packaged variable air volume system with gas furnace	rEVEF	evaporative cooling with electric furnace
cDDCT	dual duct system	cSVVE	built-up variable air volume system with electric reheat	rEVEH	evaporative cooling with electric resistance baseboard heating
cDXEH	split or packaged direct expansion unit with electric heat	cSVVG	built-up variable air volume system with gas boiler	rEVGF	evaporative cooling with gas furnace
cDXGF	split or packaged direct expansion unit with gas furnace	cUnc	no HVAC (unconditioned)	rEVOH	evaporative cooling with other heat (e.g., propane)
cDXHP	split or packaged direct expansion unit with heat pump	cVRF	variable refrigerant flow	rNCEF	no cooling with electric furnace
cDXOH	split or package direct expansion unit with "Other Heat" source, such as propane	cWLHP	water loop heat pump	rNCEH	no cooling, electric baseboard heating
cEVAP	evaporative cooling with separate gas furnace	cWtd	standard weights applied to commercial HVAC types	rNCGF	no cooling, gas furnace

HVAC	Description	HVAC	Description	HVAC	Description
cFPFC	four pipe fan coil	cWVVG	built-up VAV system with water cooled chiller and gas boiler	rNCOH	no cooling with "Other Heat" source, such as propane
cHPVRF	heat pump VRF system	rDXEF	central AC with electric furnace	rUnc	no HVAC (unconditioned)
cHRVRF	heat recovery VRF system	rDXEH	air conditioning with electric resistance baseboard heating	rWtd	standard weights applied to residential HVAC types
cNCEH	no cooling with electric heat	rDXGF	central AC with gas furnace		
cNCGF	no cooling with gas furnace	rDXHP	central heat pump with electric resistance backup		

Building Location: The location of the building according to a California climate zone (CZ) within a utility service territory.

'Any' is used to describe cases for which savings are not weather dependent. In this TRM, 'All climate zones' is used when all 16 CZs are available, instead of listing them out individually; impacts can be CZ dependent. If at least one CZ is not eligible, this TRM will list out the applicable CZs and provide an explanation for the missing ones in the "Other: Program Exclusions" subsection of the measure page.

Name	Description	Name	Description	Name	Description
3A	District 3A	CZ05	Santa Maria Area	CZ12	Sacramento Area
3B	District 3B	CZ06	Torrance	CZ13	Fresno Area
Any	Any Location	CZ07	San Diego-Lindbergh	CZ14	Palmdale
CZ01	Arcata Area	CZ08	Fullerton	CZ15	Palm Springs-Intl
CZ02	Santa Rosa Area	CZ09	Burbank-Glendale	CZ16	Blue Canyon
CZ03	Oakland Area	CZ10	Riverside		
CZ04	San Jose-Reid	CZ11	Red Bluff Area		

Building Type: A prototypical building that represents the typical instance of a particular building type in California.

The 'Com' and 'Res' building types represent the weighted average of all commercial or all residential building types, respectively. 'Any' is used when savings do not depend on Building Type.

Name	Description	Name	Description
AgOth	Other Agricultural	IPM	Manufacturing Plastics
ALF	Livestock Farms	Lib	Libraries
Any	All Subsectors	MBT	Manufacturing Biotech
APF	Agricultural Produce Farms	MCE	Manufacturing Electronics
Asm	Assembly	MFm	Residential Multi-family
Cnc	Health/Medical - Clinics	MFmCmn	Residential Multi-family Common Area
Com	Commercial	MLI	Manufacturing Light Industrial
CRe	Municipal - City Parks/Recreations	MPF	Metal Production and Fabrication
Dat	Data Center	Mtl	Lodging - Motel
DMo	Residential Mobile Home	Nrs	Health/Medical - Nursing Home
ECC	Education - Community College	OfL	Office - Large
EPr	Education - Primary School	OfS	Office - Small
ERC	Education - Relocatable Classroom	Rel	Religious assembly buildings
ESe	Education - Secondary School	Res	Residential
EUD	University Dormitory	RFF	Restaurant - Fast-Food
EUn	Education - University	RSD	Restaurant - Sit-Down

Name	Description	Name	Description
Fhc	Fitness Center - Private Health Club	Rt3	Retail - Multistory Large
Fin	Financial buildings, incl. banks	RtL	Retail - Single-Story Large
GHs	Greenhouse	RtS	Retail - Small
Gro	Grocery	s_Agr	SCE Agricultural
Gst	Lodging - Guest Room	s_Cli	SCE Health/Medical Clinic
HGR	Hotel Guest Room	SCn	Storage - Conditioned
Hsp	Health/Medical - Hospital	SFm	Residential Single Family
Htl	Lodging - Hotel	s_FSt	SCE Food Store
IAT	Transportation Equipment	s_Ind	SCE Industrial
IBM	Manufacturing Beverage	s_MiC	SCE Miscellaneous Commercial
ICP	Chemical Processing	SMo	Single-wide Mobile Home
ICS	Manufacturing Cement/Stone	s_TCU	SCE Transportation - Communication - Utilities
IFP	Food Processing	SUn	Storage - Unconditioned
IGM	Manufacturing Glass	Sup	Supermarket
IGP	Gas Production	VPr	Vineyards and Processing
IndOth	Other Industrial	WRf	Warehouse - Refrigerated
IPe	Petroleum	WWT	Water Waste Treatment
IPH	Manufacturing Pharmaceutical		

Building Vintage: The construction era of a building, which is typically limited to existing (Ex) or new (New). However, 'Ex' is a weighted average representative of code-based vintage constructions that could also be represented as old (Old) or recent (Rec).

'Any' is used when savings do not depend on vintage. However, effective from PY2024, 'Any' building vintage is no longer allowed per CPUC Resolution E-5221.

Name	Description
2023	after 2022
Any	Any Vintage
Ex	Existing \ Median Age
New	New Construction
Old	Old
Rec	Recent

Combustion Type: An optional field for the cost effectiveness tool (CET) to define the combustion type used. eTRM is not utilizing this field.

DEER Measure ID: An identifier specified to link the measure with impacts in the ex-ante database. *Effective from PY2026, this field is retired as energy models are moved to EnergyPlus and done by the measure developer; this field remains in the permutations data table but is set to blank.*

Delivery Type: The market channel to which program services are targeted (also referred to as the "delivery channel").

Delivery Type	Delivery Type Description
DI	Incentivizes the installation of an energy-efficient technology or service at a customer property by a program implementer managed third-party contractor or installer
DnCust	Downstream custom
DnCustDI	Downstream custom direct install
DnDeemDI	Downstream deemed direct install
DnDeemed	Downstream deemed
Down	Incentivizes an energy-efficient technology or service to a participating customer for them to install or have installed by their chosen contractor
Mid-Distr	Incentivizes an energy-efficient technology through a program administrator partnership with a distributor
Mid-Retail	Incentivizes an energy-efficient technology through a program administrator partnership with a retailer
UpDeemed	Upstream deemed
Up-Manuf	Incentivizes an energy-efficient technology through a program administrator partnership with a manufacturer

Effective Start Date: The first day the measure version and its data are active and ready to be used in California energy programs. The Effective Date is set to follow the approval or activation of the measure version and should not overlap with the previous published version of the measure package (MP).

Effective Useful Life (EUL) ID: An identifier that maps to the appropriate effective useful life (EUL) value for the measure. The EUL value (or EUL Years) is defined as the median number of years that a measure installed under a program is still in place and operable.

See "Data Tables" section for list of EUL IDs and their associated EUL Years and RUL Years.

Electric Benefits (USD): Field represents the Net Electric Benefits and is based on the avoided cost associated both with generation and with transmission and distribution. Field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

Electric Impact Profile ID: An identifier of load shape used for portfolio lifecycle cost analysis. A load shape indicates the distribution (typically hourly) of a measure's energy savings over one year. A load shape is also often normalized by annual energy savings such that summing all the normalized load shape values over one year would result in a value of 1. Multiplying a saving value by the normalized load shape value for a particular hour will yield the energy saving for that hour.

At this time, only the following DEER load shapes are allowed for deemed measures.

Sector	Electric Load Shape
Com	HVAC_Chillers HVAC_Split-Package_AC HVAC_Split-Package_HP Indoor_Non-CFL_Ltg
Res	HVAC_Eff_AC HVAC_Eff_HP Refg_Chrg_Duct_Seal RefgFrzr_HighEff RefgFrzr_Recyc-Conditioned RefgFrzr_Recycling RefgFrzr_Recyc-UnConditioned

Sector	Electric Load Shape
Any	HVAC_Duct_Sealing HVAC_Refrig_Charge Indoor_CFL_Ltg DEER:Indoor_Non-CFL_Ltg Res_BldgShell_Ins Res_ClothesDishWasher

End Date: The End Date is the date after which the measure version is no longer active or eligible to be implemented in a program. End Dates are not always specified during measure development in the eTRM but may be subsequently used to trigger review of measure parameters and/or supporting data or assumptions.

This TRM uses a default End Date of 3 years after the Start Date if the eTRM does not have a previously specified End Date.

ETP First Year Introduced to Programs: Field documents the year an Emerging Technologies Program (ETP)-funded technology was first approved as a deemed measure. See "ETP Flag".

ETP Flag: The ETP Flag indicates if measure offerings were supported by research funded through the Emerging Technologies Program (ETP). This field lists the ET project numbers that are associated with the permutation.

EUL Years (yr): Measure life, in years, of the measure case equipment.

In the eTRM: For accelerated replacement (AR), normal replacement (NR), new construction (NC), building weatherization (BW), and Behavioral-Retrocommissioning-Operational (BRO) measure application types (MAT), the value is equal to the "EUL Years" of the "EUL ID". For the add-on equipment (AOE), to match the cost-effectiveness tool's (CET) calculation logic, the value is equal to the "First Baseline – Life Cycle".

Note that this is the field reported within the CET input file (EUL_Yrs).

In this TRM: To keep existing baseline and standard baseline distinct, the AOE life (see "AOE Years") is excluded from this field and placed in the "RUL Years" instead.

- If MAT = {NC and NR}, the standard/code baseline impacts are applicable for the duration of the EUL Years.
- If MAT = {BW or BRO}, the existing baseline impacts are applicable for the duration of the EUL Years.
- If MAT = AR, the standard/code baseline impacts are applicable for the duration of EUL Years, less the RUL Years
- If MAT = {AOE}, field is not applicable

See "Data Tables" section for list of EUL IDs and their associated EUL Years.

Existing (or Pre-existing): Existing condition refers to the existing or as-is state and/or technology *before* any program intervention and/or alteration such as an accelerated replacement. This is the first baseline for accelerated replacement (AR), add-on equipment (AOE), building weatherization (BW), and Behavioral-Retrocommissioning-Operational (BRO) measure application types (MAT).

> Existing Description: Description of the existing condition that is used to characterize the first baseline for AR, AOE, BW, and BRO measures.
>
> As an example, for SWWH002-03 Residential Low-Flow Showerhead, the existing condition description would be "Inefficient showerhead, 2.25 gpm."
>
> Existing – Electric Savings (kWh/yr): Electric annual unit energy savings (UES) calculated as the difference in the annual unit energy consumption between the measure case and the pre-existing base case.
>
> Existing – Gas Savings (kWh/yr): Gas annual unit energy savings (UES) calculated as the difference in the annual gas consumption between the measure case and the pre-existing base case.

Existing – Peak Demand Reduction (kW): Peak demand reduction calculated as the difference in the peak demand between the measure case and the pre-existing base case. Calculation conforms to the current California peak demand definition.

Existing Technology Group: The highest level of technology categorization of the pre-existing base case.

See "Data Tables" section for the list of technology groups

Existing Technology ID: A subset of Technology Type, describing the pre-existing base case technology. For modeled measures, this ID provides insight into the prototype model used to estimate the energy usage of the pre-existing case.

Existing Technology Type: A subcategory to Technology Group to further characterize the pre-existing base case. This field facilitates the categorization of claims data but is expected to also help specify load shape data.

See "Data Tables" section for the list of technology types

Existing – Water Savings (Gal): Annual unit water savings in gallons calculated as the difference in the annual unit water consumption (UWC) between the measure case and the pre-existing base case.

First Baseline: Baseline refers to the condition that is being altered by the proposed measure case with the purpose of realizing energy efficiency (EE). This can be:

- standard practice (or code) in scenarios where a standard efficiency equipment would have been purchased to replace non-existent or non-functioning equipment if not for programs intervention (i.e., measure application type (MAT) = normal replacement (NR) or new construction (NC)), OR
- existing condition in scenarios where no alteration would have occurred without program intervention (i.e., other MATs)

The energy or other type of savings achieved by the measure case, from the first baseline, is typically effective for the duration of the measure case lifetime. See "EUL Years" and "First Baseline Life".

However, for accelerated replacement (AR) where EE programs influenced an early alteration instead of waiting until the end of life, California uses a dual baseline treatment to determine the appropriate realized savings. The first baseline is the period up until the would-be end of life of the existing equipment (had it not been pre-maturely replaced) in which AR can claim energy savings from the existing condition; then for the rest of the measure case lifetime (i.e., "Second Baseline"), AR can only claim energy savings from the code/standard practice. For other MATs, the first baseline is the only baseline, valid for the entire duration of the measure life.

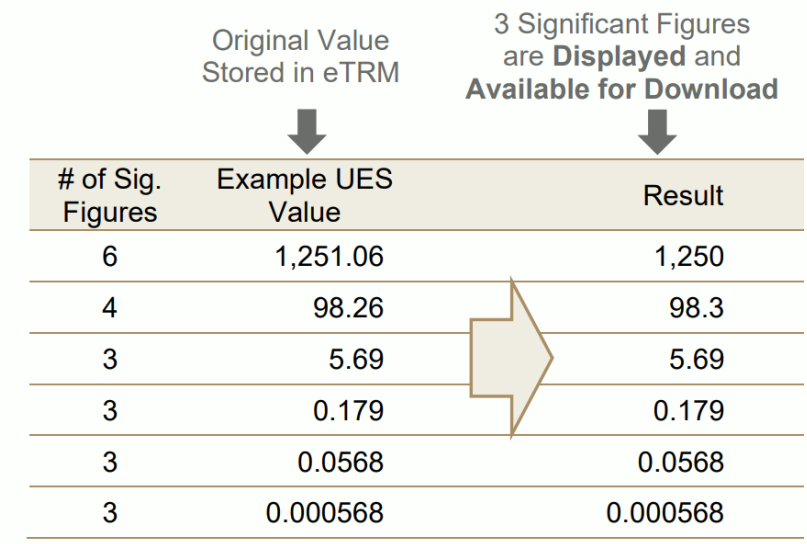
First Baseline Case: Class categorization of the measure first baseline based on the MAT. More detailed information on this field can be found in the "Acceptance of Deviation from Resolution E-5152, Section C.11" CPUC memo.

Measure Application Type	Class First Baseline
Add-on equipment (AOE)	Existing or Standard Practice
Accelerated replacement (AR) Behavioral-Retrocommissioning-Operational (BRO) Building weatherization (BW)	Existing
New construction (NC) Normal replacement (NR)	Standard Practice

First Base Case Description: Concatenated description of the first baseline with parameters that affect impacts (e.g., savings, cost, measure life, cost effectiveness).

For example, a First Base Case Description for the Residential Low-flow Showerhead (SWWH002-03) would be "Showerhead, 2.25 gpm, electric, DMo, AOE, CZ01."

First Baseline – Electric Savings (kWh/yr): Annual electric unit energy savings (UES) per normalized unit during first baseline period. The field is stored as a decimal data type and rounded to three significant figures. For example:



# of Sig. Figures	Example UES Value	Result
6	1,251.06	1,250
4	98.26	98.3
3	5.69	5.69
3	0.179	0.179
3	0.0568	0.0568
3	0.000568	0.000568

First Baseline – Gas Savings (therms/yr): Annual gas UES per normalized unit during first baseline period.

Rule for storing and rounding this data match the rules for the First Baseline – Electric Savings.

First Baseline – IOU Embedded Water Energy Savings (kWh/yr): The water management cycle requires significant amounts of energy. This "embedded" energy represents the energy required for the extraction, conveyance, treatment, and distribution of supplied water, as well as collection and treatment of wastewater. Much of the embedded energy is supplied by IOUs, but some of the energy is supplied by other sources. This field represents the estimated IOU portion of the embedded water energy savings (kWh/yr) associated with the measure (if applicable), during the first baseline period. Values in this field are calculated using the water energy intensity ratio from the Water Energy Calculator (WEN).

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings

First Baseline Labor Cost (USD): Labor cost per normalized unit to install the base case technology, applicable to first baseline period. Generally, the measure case and base case labor costs are identical and cancel each other out in the incremental measure cost calculation; thus, labor cost may not get reported.

Cost is equal to 0 if the baseline is an existing, as-is condition (i.e., MAT = AR, AOE, BRO-RCx, or BW).

First Baseline – Life Cycle (yrs): Measure life, in years, applicable to first baseline period.

- For NR, NC, BRO, and BW MAT, the value is equal to the EUL Years.
- For AR, the value is equal to the RUL Years.
- For AOE, the value could either: 1) calculated as the minimum of the RUL_Yrs of the host equipment (RUL_ID) and the EUL_Yrs of the measure equipment (EUL_ID) OR 2) for special cases, equal to the full EUL_Yrs of the measure equipment. See “AOE Years”, “EUL Years”, “RUL Years”.

In special cases, such as lighting and some HVAC measures, the life is calculated based on the annual hours of use that are linked to the Building Type.

First Baseline Material Cost (USD): Material cost per normalized unit to install the base case technology, applicable to first baseline period.

Cost is 0 if the base case is the existing, as-is condition (i.e., MAT = AR, AOE, BRO-RCx, or BW).

First Baseline – Peak Electric Demand Reduction (kW): Peak demand reduction per normalized unit during first baseline period. Conform to the current California peak demand definition.

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

First Baseline – Total Embedded Water Energy Savings (kWh/yr): See "First Baseline – IOU Embedded Water Energy Savings". This field represents the sum of IOU and non-IOU embedded water energy savings (kWh/yr) associated with the measure (if applicable) during the first baseline period.

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings

First Baseline – UEC kW (kW): UEC means unit energy consumption. This field is the base case peak demand value per normalized unit during first baseline period. The calculation of this value should conform to the California peak demand definition.

The UEC should be isolated to a specific measure (rather than a whole building). If this is not possible, "UECkWBase1" should equal "UnitkW1stBaseline" (in other words, the base case peak demand is assumed to equal the unit savings and the measure case peak demand equals zero so that the savings = base case peak demand – measure case peak demand).

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

First Baseline – UEC kWh (kWh/yr): Base case electric annual energy consumption (UEC) per normalized unit during first baseline period.

The UEC should be isolated to a specific measure (rather than a whole building). If this is not possible, "UECkWhBase1" equal "UnitkWh1stBaseline" (in other words, the base case usage is assumed to equal the unit savings and the measure case usage equals zero so that savings = base UEC – measure UEC).

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

First Baseline – UEC therm (therms/yr): Base case gas annual energy consumption (UEC) per normalized unit during first baseline period.

The UEC should be isolated to a specific measure (rather than a whole building). If this is not possible, "UECThermBase1" equal "UnitTherm1stBaseline" (in other words, the base case usage is assumed to equal to the unit savings and the measure case usage equals zero so that the savings = base UEC – measure UEC).

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

First Baseline – Water Savings (gal/yr): Annual water savings (gal/yr) associated with the measure (if applicable) during the first baseline period.

Fuel ID: A string descriptor that categorizes measures based on the energy usage and energy savings fuel type. Field is created in response to D.23-04-035 as a means to distinguish between exempt, nonexempt, and fuel substitution measures.

Fuel ID	Description
None	A non-saving measure that uses neither electricity nor natural gas
FuelSub-ToGas	Fuel substitution measure that replaces electric-only equipment with natural gas-burning equipment
FuelSub-ToElec	Fuel substitution measure that replaces natural gas-burning equipment with electric-only equipment
Exempt	Energy efficiency measure that saves natural gas but does not burn natural gas
EE-Gas	Energy efficiency measure that burns natural gas
EE-Elec-Only	Energy efficiency measure that saves electricity only and does not burn natural gas
AllElec-New	All-electric new construction without gas service where the standard practice baseline is natural gas-burning equipment

Full Measure Cost (USD): The total cost of the measure case – calculated as the sum of measure case labor cost, measure case material cost, and costs to convert fuel infrastructure (e.g., costs to upgrade electric wiring) if measure is a fuel substitution measure.

Gas Benefits (USD): This field represents Net Gas Benefits and is based on the avoided costs associated with natural gas generation, transmission, and distribution (typically $/therm). This field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

Gas Impact Profile ID: An identifier for the gas load shape used for portfolio lifecycle cost analysis. A load shape represents the distribution of a measure's savings over one year. A normalized load shape is a set of fractions that sum up to 1 over one year. Multiplying a saving value by the normalized load shape value for a particular hour will yield saving for that hour. Also see "Electric Impact Profile ID"

Gas Impact Profile ID	Description
Annual	
Annual-FuelSub-ToElec	Fuel Sub designation of "Annual"
Summer Only	
Summer Only-FuelSub-ToElec	Fuel Sub designation of "Summer Only"
Winter Only	
Winter Only-FuelSub-ToElec	Fuel Sub designation of "Winter Only"

GSIA ID: An identifier that maps to the gross savings installation adjustment (GSIA) value for the measure. The GSIA value represents the ratio of the number of verified installations of the measure to the number of claimed installations reported by the program administrator.

This factor varies by end use, sector, technology, application, and delivery method. The "default" rate of 1 is used for measures for which an alternative GSIA has not been estimated or stipulated.

See "Data Tables" section for list of GSIA IDs and GSIA Values.

GSIA Value (ratio): The GSIA value associated with the GSIA ID. This ratio is typically applied to the measure unit energy savings.

Locational Cost Adjustment ID: eTRM is currently not utilizing this field.

IE Table Name: This field includes names of the interactive effects (IE) value tables used for the measure (e.g., '2023-Com-InLtg' or '2023-Res-InLtg'). See "Is IE Factor Applied".

Incremental Measure Cost (USD): A calculated field that equals the difference between the measure case costs (including material, labor, and infrastructure costs for fuel substitution measures) and the base case costs (including material and labor costs).

In the eTRM, the incremental cost equals the full measure cost when the base case is the as-is existing condition and base case cost is $0 (i.e., measure application type = accelerated replacement (AR), add-on equipment (AOE), building weatherization (BW), and behavioral-retrocommissioning-operational (BRO)). In this TRM, incremental cost is blank if not applicable and measure only has full measure cost.

Is IE Factor Applied?: This field indicates using a 'Yes' or 'No' flag whether interactive effects (IE) factors are applied to a measure.

Interactive effects for a measure are defined as energy and demand impacts on secondary systems or equipment not directly involved in energy efficiency activities (e.g., cooling or heating energy impacts resulting from the installation of efficient lighting fixtures).

Market Effects Benefits: An optional field for the cost effectiveness tool (CET) to set the market effect rate. The eTRM is currently not utilizing this field.

Market Effects Costs: An optional CET field also used to set the market effect rate. The eTRM is currently not utilizing this field.

Measure Application Type (MAT): A classification scheme based on the circumstances and timing of the measure installation. The MAT classifies an energy efficiency activity and dictates the appropriate baseline treatment, cost basis, useful life, eligibility, and documentation requirements. See "Existing (Pre-existing)", "First Baseline", "Second Baseline", and "Standard" fields.

Name	Description
AOE	Add-on Equipment
AR	Accelerated Replacement
BRO-Bhv	BRO-Behavioral
BRO-Op	BRO-Operational
BRO-RCx	BRO-Retrocommissioning
BW	Building Weatherization
NC	New Construction
NR	Normal Replacement (includes Replace on Burnout)

Measure Case Description: Concatenated description of the measure case with parameters that affect impacts (e.g., savings, cost, measure life, cost effectiveness).

Measure Cost ID: eTRM is currently not utilizing this field.

Measure Detail ID: A unique identifier for each permutation. This field is populated with an auto-generated identifier created by concatenating 13 data specification fields, shown below:

MeasureVersionID	BldgType	GSIA_ID
OfferingID	BldgVint	PAType
MeasAppType	BldgHVAC	PA
DeliveryType	BldgLoc	
Sector	NTG_ID	

Measure Impact Calculation Type: Defines the calculation methodology used to quantify measure savings. Five valid options are available, but the most typical value is 'Standard'.

Measure Impact Calculation Type	Description
CrossMeasWtd	Cross-Measure Weighted: Energy impacts for multiple measures are weighted to create a new set of measure impacts.
DirectIE	Energy impacts are specified with "Direct Impacts" and modified by Interactive-Effects tables
Scaled	Whole-building energy impacts are specified by a reference to a "Scalable" Energy Impact ID along with a Scale Value
ScaledDirectIE	End-Use energy impacts are specified by a reference to a "Scalable" Energy Impact ID along with a Scale Value, Whole Building impacts are determined by applying a specified Interactive-Effects tables to the end-use impacts.
Standard	Energy impacts are looked up in the Energy Impact table based on a specified EnergyImpactID

Measure Impact Type: Measure Impact Type designates the type of measure, which could include qualities like:

- Deemed or Custom
- CPUC Created or PA Created
- Fuel Substitution, Normalized Metered Energy Consumption (NMEC), Randomized-Control Trail (RCT) or Strategic Energy Management (SEM)

Effective from PY2026, the Measure Impact Types for deemed measures will be consolidated to just 'Deem'.

Label	Description	Label	Description
Cust-FuelSub	Custom Fuel Substitution: site-specific calculation using approved tool or method	Cust-SEM	Custom SEM: uses a strategic energy-management method
Cust-Gen	Custom Generic: generic, site-specific calculation or using approved tool or method and/or metered data (excluding NMEC, SEM, or RCT offerings)	Cust-SEM-FuelSub	Custom SEM: uses a strategic energy-management method involving fuel substitution
Cust-NC-AE	Custom All-Electric New Construction: site-specific calculation using approved tool or method and/or metered data (excluding NMEC, SEM, or RCT offerings)	Deem	Deemed measure
Cust-NMEC-Pop	Population-level Normalized Metered Energy Consumption (NMEC) energy impacts are specified on a custom basis.	Deem-DEER	Deemed DEER: uses DEER-adopted values
Cust-NMEC-Pop-FuelSub	Population-level Normalized Metered Energy Consumption (NMEC) energy impacts for fuel-substitution measures are specified on a custom basis	Deem-DEER-FuelSub	Deemed DEER Fuel Substitution: uses DEER-adopted values
Cust-NMEC-Site	Site-level Normalized Metered Energy Consumption (NMEC) energy impacts are specified on a custom basis.	Deem-WP	Deemed Workpaper: uses values from an approved workpaper
Cust-NMEC-Site-FuelSub	Site-level Normalized Metered Energy Consumption (NMEC) energy impacts for fuel-substitution measures are specified on a custom basis.	Deem-WP-FuelSub	Deemed Workpaper Fuel Substitution: uses values from an approved workpaper
Cust-RCT	Custom RCT: uses a randomized-control trial (RCT) or experimental design method	Deem-WP-NC-AE	Deemed measure for All-Electric New Construction: uses values from an approved measure package

Measure Inflation: An optional cost effectiveness tool (CET) field to set the inflation rate. eTRM is currently not utilizing this field.

Measure – Labor Cost: Labor cost per normalized unit to install the measure case technology. Generally, measure case and base case labor cost are identical and cancel each other out in the incremental measure cost calculation; thus, labor cost may not get reported.

Measure – Material Cost: Material cost per normalized unit to install the measure case technology.

Measure Name: A short descriptor of the technology, with Fuel Type, Sector and/or other necessary attributes to concisely distinguish the measure from other available products. The convention for a measure name is provided below. A comma is typically used as the delimiter.

Root technology, Fuel Type, Sector, Fuel Substitution Designation			
Root technology	**Fuel Type**	**Sector**	**Fuel Substitution Designation**
Technology (noun, singular). Use plural only if more than one is always installed. Only use descriptive or modifying words if necessary to clarify its intended use as add-on equipment, or to distinguish the measure from other measures or from other available technologies. Do not use "Efficient" or "Energy Efficient'. ENERGY STAR is necessary in name only if all offerings are ENERGY STAR. No abbreviations. No acronyms.	Fuel type should only be specified in the measure name if necessary to distinguish from another similar measure and/or if the measure excludes a fuel type that is available in the market. It is not necessary to specify a fuel type if the technology is only available for that fuel type. Do not specify both electric and gas or "all"	Sector should only be specified in the measure name if necessary to distinguish from another similar measure and/or if excluding specific sectors. Do not specify all sectors or "all".	Fuel Substitution should only be specified if the measure is a fuel substitution measure.

Measure Offering Description: See “Offering Description”.

Measure Qualifier: eTRM is currently not utilizing this field.

Measure Total Cost 1st Baseline: Calculated value of incremental measure cost per normalized unit, applicable to the 1st baseline period. See “Incremental Measure Cost” and “Full Measure Cost”.

$$(Meausure\ Labor\ Cost + Measure\ Material\ Cost + Infrastructure\ Cost) - (First\ Baseline\ Labor\ Cost + First\ Baseline\ Material\ Cost)$$

For accelerated replacement (AR), add-on equipment (AOE), behavior-retrocommissioning-operational (BRO), and building weatherization (BW) measure application types, the first baseline costs equal zero and this field is equivalent to the “Full Measure Cost”.

This value is reported for both claims and cost-effectiveness runs.

Measure Technology ID: Technology ID is a subset of Technology Type, describing the measure case technology. For modeled measures, this ID provides insight into the prototype model used to estimate the energy usage of the measure case.

Measure Total Cost 2nd Baseline: Calculated value of the incremental measure cost per normalized unit, applicable to the 2nd baseline period. See “Incremental Measure Cost” and “Full Measure Cost”.

$$(Measure\ Labor\ Cost + Measure\ Material\ Cost + Infrastucture\ Cost) - (Second\ Baseline\ Labor\ Cost + Second\ Baseline\ Labor\ Cost)$$

This is only applicable for accelerated replacement (AR) measure application type (MAT).

Measure UEC kW (kW): UEC stands for unit energy consumption. This field is the measure case peak demand per normalized unit. The calculation of this value should conform to the California peak demand definition.

The UEC should be isolated to a specific measure (rather than a whole building). If this is not possible, this value should equal zero. See “First Baseline – UEC kW”. Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Measure UEC kWh (kWh): Measure case electric annual unit energy consumption (UEC) per normalized unit.

The UEC should be isolated to a specific measure (rather than a whole building). If this is not possible, this value should equal zero. See “First Baseline – UEC kWh”. Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Measure UEC Therm (therm/yr): Measure case gas annual unit energy consumption per normalized unit.

The UEC should be isolated to a specific measure (rather than a whole building). If this is not possible, then this value should equal zero. See “First Baseline – UEC Therm”. Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Measure Version ID: The Measure Version ID identifies a unique measure package (MP) and its update revisions. The field is built from a concatenation of Measure ID, (Major) Version Number, and Minor Version Number. See “Statewide Measure ID” and example below:

SWAP001-01-1

Major version number represents the measure package release cycle, which is a major update that goes through formal review/approval process and is published with a new effective date. See Effective Start Date and End Date fields.

Minor version number is auto generated when a measure developer creates and commits/saves a new draft to edit the measure data. Each major version update goes through multiple revisions, so there can be multiple minor versions. However, only one final minor version can be published for each major version and the minor version numbers only appear in the Version History Log. The minor version number does not appear in the permutations for published measures.

Miscellaneous Cost Description: Description of miscellaneous costs (MiscCostDesc) to provide context for the costs included. See "Unit Miscellaneous Costs (USD)" field.

Miscellaneous Benefit Description: Description of miscellaneous benefits (MiscBensDesc) to provide context for the benefits included. See "Unit Miscellaneous Benefits (USD)" field.

Net to Gross Ratio ID: An identifier that maps to the value of the net to gross ratio (NTGR or NTG ratio) in the Net to Gross Ratio table. The NTG ratio represents the fraction of gross impacts that are estimated to be directly attributable to a specific program's interventions. The NTG ratio is used to quantify the extent of free-ridership or the portion of energy or demand impacts that would have occurred in the absence of the program. The NTG ratio typically varies by sector but can also vary by other parameters like delivery type.

See "Data Tables" section for list of NTG IDs and the NTGRs.

Normalized Unit - Savings and costs can be expressed in relation to other quantities. This unit of measurement is referred to as the Normalized Unit.

Name	Description	Name	Description
Area-Acre	per Acre	Household	dwelling or household
Area-ft^2	square feet of technology	Installation	technology installation
Area-ft^2-BA	square feet of building area	KiloLumen	kilolumens of light output
Building	building associated with the technology	kW	kilowatt demand
Cap-kBTUh	kBtu/hr of input capacity	kWh	annual kWh consumption
Cap-kW	kW of input capacity	kWhreduced	annual kWh reduction
Cap-MBTUh	MBtu/hr of input capacity	kWreduced	kilowatt demand reduction
CapOut-kBtuh	kBtu/hr of output capacity	Lamp	per lamp
Cap-Tons	ton of cooling capacity	Len-ft	length (feet)
Ctrl-kW	kW controlled	Proc-lbs	Pounds of material processed
Each	installation of technology	Rated-HP	nameplate HP
Fixture	lighting or plumbing fixture	SurfArea-ft^2	surface area (ft^2)
Flow-CFM	CFM of rated air flow	therm	annual therm consumption
Flow-GPM	gallons per minute of rated flow	Vol-Refr-ft^3	Refrigerated volume (ft^3)

NTGR Cost (ratio): The cost net to gross ratio, which equals the NTGR kWh associated with the NTG ID. This ratio will be applied to the gross cost value.

NTGR kW (ratio): The peak demand net to gross ratio, which equals the NTGR kWh associated with the NTG ID. This ratio will be applied to the gross peak demand reduction.

NTGR kWh (ratio): The electric net to gross ratio associated with the NTG ID. This ratio will be applied to the gross electric savings.

NTGR Therms (ratio): The gas net to gross ratio associated with the NTG ID. This ratio will be applied to the gross gas savings.

Offering Description (or "Measure Offering Description" in the Offering ID table): This is the short string description of the Offering ID. See "Offering ID."

Offering description should be unique to each offering ID and vice versa.

Offering ID (or Statewide Measure Offering ID): An identifier for each measure offering, based on the variations of measure case, base case, and installation determinants that characterize each measure. For example, the "SWHC020-04 Air-Cooled Screw Chiller" measure can be characterized by "Capacity," "Energy Efficiency Ratio," and "Integrated Part Load Value,"

creating multiple distinct offerings for this measure (see example image below). Offerings are then assigned an ID token for identification, using the alphabet system (i.e., A, B, ..., Z, AA, AB, ...).

CAPACITY	ENERGY EFFICIENCY RATIO (EER)	INTEGRATED PART LOAD VALUE (IPLV)	STATEWIDE MEASURE OFFERING ID (TEXT)	MEASURE OFFERING DESCRIPTION (TEXT)
< 150 tons	11.1	15.1	C	**Air cooled constant speed screw chiller (< 150 tons, 11.1 EER, 15.1 IPLV)**
< 150 tons	12.1	16.4	F	**Air cooled constant speed screw chiller (< 150 tons, 12.1 EER, 16.4 IPLV)**
>= 150 tons	11.1	15.4	A	**Air cooled constant speed screw chiller (>= 150 tons, 11.1 EER, 15.4 IPLV)**
>= 150 tons	12.1	16.8	E	**Air cooled constant speed screw chiller (>= 150 tons, 12.1 EER, 16.8 IPLV)**

Other Benefits: This field represents the Net Other Benefits. This term includes the Avoided Gas Infrastructure Cost (AGIC), refrigerant, and miscellaneous benefits. This field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

Other Costs: This field represents the Net Other Costs. This term includes the refrigerant and miscellaneous costs. This field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

PA Lead: Program Administrator (PA) Lead is the designated publicly owned utility (POU), investor-owned utility (IOU), or regional energy network (REN) that sponsors and oversees the measure package development.

PAC Cost - No Administrative Cost (USD): This field represents the Net Program Administrator Cost (PAC) without program costs. The PAC test considers net costs from just the program administrator perspectives; it is calculated identically as the TRC Cost – No Administrative Cost but without including participant costs. This field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

The “no administrative cost” version is included in the eTRM to provide a directional and best-case view of permutation cost effectiveness without the consideration for the needs of a specific program.

PAC Ratio - No Administrative Cost: Cost effectiveness tests are defined in the California Standard Practice Manual. The Program Administrator Cost (PAC) ratio is a ratio of benefits to costs from just the program administrator perspectives. Field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

The “no administrative cost” version is included in the eTRM to provide a directional and best-case view of permutation cost effectiveness without the consideration for the needs of a specific program.

Pre-Existing Technology Group: See “Existing Technology Group”

Pre-Existing Technology ID: See “Existing Technology ID”

Pre-Existing Technology Type: See “Existing Technology Type”

Program Administrator (PA): If the "Program Administrator Type" field = 'IOU' (i.e., not a statewide measure, PA-dependent), this field designates the specific California investor-owned utility (IOU) or regional energy network (REN) for which the permutations are applicable. In general, statewide measures are intended to be PA-*independent*, so all efforts should be made to assign the PA field the 'Any' value.

Name	Description	Name	Description
Any	Any PA (i.e., statewide measure)	SCE	Southern California Edison
BAY	Bay Area Regional Energy Network	SCG	Southern California Gas
EBCE	East Bay Community Energy	SCP	Sonoma Clean Power
IREN	Inland Regional Energy Network	SCR	Southern California Regional Energy Network
MCE	Marin Clean Energy	SDGE	San Diego Gas & Electric
PCE	Peninsula Clean Energy	SJCE	San Jose Clean Energy
PGE	Pacific Gas & Electric	SW	Statewide
RCEA	Redwood Coast Energy Authority	TCR	Tri-county Regional Energy Network

Program Administrator Type: This field designates if the permutations are applicable only for publicly owned utilities (POUs) or a specific investor-owned utility (IOU). If impacts do not vary by IOU/POU area (i.e., statewide measure), designate 'Any.'

Name	Description
Any	IOU and/or POU
IOU	Investor-Owned Utility
POU	Publicly Owned Utility

Restricted Permutation (Number): This field was created in response to the CPUC's Gas Decision - D.23-04-035 to document the TRCRatio for non-exempt natural gas, new construction, and Res or Com permutations. This field has value of 0 if TRCRatio ≥ 1.0 and value of 1 if TRCRatio < 1.0. *Note, the TRCRatio includes program costs and does not equal the "TRC Ratio – No Administrative".*

For measures/permutations that are not non-exempt gas, new construction, or Res/Com sector, this field has a value of 0.

Remaining Useful Life ID: An identifier that maps to the appropriate remaining useful life (RUL) of the energy efficiency measure. RUL is an estimate of the median number of years that a measure being replaced under the program would remain in place and operable if the program intervention had not caused the replacement.

This field is used to calculate the life in years that can be claimed so that the calculation is transparent to a user.

RUL is only applicable to add-on equipment (AOE) and accelerated replacement (AR) measures. For AR, the RUL ID refers to the remaining life of the existing base case equipment. For AOE, it is the remaining life of the host equipment, not used if the add-on is not typically replaced at the same time as the host equipment. For other measure types (normal replacement (NR), new construction (NC), building weatherization (BW), and behavioral-retrocommissioning-operational (BRO)), this field is blank.

See "Data Tables" section for list of RUL IDs (which is the same as EUL IDs in the table) and the RUL Years.

RUL Years (yr): The assigned remaining useful life, in years, of the RUL ID. By default, it equals one-third of the effective useful life (EUL) years. See "AOE Years" and "EUL Years".

In the eTRM: for accelerated replacement (AR), the value is equal to the RUL Years of the selected RUL ID. For all other measure application types, this value is 0. For add-on equipment (AOE), RUL Years may be needed to calculate the first baseline lifecycle, but the value is not reported in the permutation.

In this TRM: to keep existing baseline and standard/code baseline distinct, the "RUL Years" field includes either the RUL Years of AR application OR the life of AOE (see "AOE Years").

- If MAT = {AR or AOE}, the existing baseline impacts are applicable during the duration of RUL Years
- For other MATs, field is not applicable

See "Data Tables" section for list of RUL IDs (which is the same as EUL IDs in the table) and the RUL Years.

Second Baseline: The second baseline period in the lifetime of an accelerated replacement (AR) measure. Also see "First Baseline" for background information. The second baseline is code/industry standard for AR and is not applicable for all the other measure application types (MATs) since they only have one baseline.

Second Baseline Case: Class categorization of the measure second baseline based on MAT.

Measure Application Type	Class First Baseline
Accelerated replacement (AR)	Code/Standard Practice
Add-on equipment (AOE) Behavioral-Retrocommissioning-Operational (BRO) Building weatherization (BW) New construction (NC) Normal replacement (NR)	None

Second Base Case Description: Concatenated description of the second baseline + parameters that vary impacts (e.g., savings, cost, life, net results, cost effectiveness).

Second Baseline – Electric Savings (kWh/yr): Annual electric UES per normalized unit during second baseline period. Values equal 0 for non-AR permutations.

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Second Baseline – Gas Savings (therms/yr): Annual gas UES per normalized unit during second baseline period. Values equal 0 for non-AR permutations.

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Second Baseline – IOU Embedded Water Energy Savings (kWh/yr): This field represents the IOU portion of the embedded water energy savings (kWh/yr) associated with the measure (if applicable) during the second baseline period. See "First Baseline – IOU Embedded Water Energy Savings". Values equal 0 for non-AR permutations.

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Second Baseline – Labor Cost (USD): Labor cost per normalized unit to install the base case technology, applicable to second baseline period. Values equal 0 for non-AR permutations.

Second Baseline – Life Cycle (Years): Measure life, in years, applicable to the second baseline period.

For AR MAT, this field is the portion of EUL Years after RUL Years, calculated as EUL Years - RUL Years. For other MATs, the field should equal 0.

Second Baseline – Material Cost (USD): Material cost per normalized unit to install the base case technology, applicable to second baseline period. Values equal 0 for non-AR permutations.

Second Baseline – Peak Electric Demand Reduction (kW): Peak demand reduction per normalized unit during second baseline period. Conform to the current California peak demand definition. Values equal 0 for non-AR permutations.

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Second Baseline – Total Embedded Water Energy Savings (kWh/yr): This field represents the sum of IOU and non-IOU embedded water energy savings (kWh/yr) associated with the measure (if applicable) during the second baseline period. See "First Baseline – Total Embedded Water Energy Savings".

Values equal 0 for non-AR permutations.

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Second Baseline – UEC kW (kW): Base case peak demand value per normalized unit during second baseline period. The calculation of this value should conform to the California peak demand definition. Values equal 0 for non-AR permutations.

The UEC should be isolated to a specific measure (rather than a whole building). If this is not possible for accelerated replacement measures, "UECkWbase2" should equal "UnitkW2ndBaseline." See "First Baseline – UEC kW."

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Second Baseline – UEC kWh (kWh/yr): Base case electric annual energy consumption per normalized unit during second baseline period. Values equal 0 for non-AR permutations.

The UEC should be isolated to a specific measure (rather than a whole building). If this is not possible for accelerated replacement measures, "UECkWhbase2" should equal "UnitkWh2ndBaseline." See "First Baseline – UEC kWh."

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Second Baseline – UEC therm (therms/yr): Base case gas annual energy consumption per normalized unit during second baseline period. Values equal 0 for non-AR permutations.

The UEC should be isolated to a specific measure (rather than a whole building). If this is not possible for accelerated replacement measures, "UECThermbase2" should equal "UnitTherm2ndBaseline." See "First Baseline – UEC therm."

Rules for storing and rounding this data match the rules for the First Baseline – Electric Savings.

Second Baseline – Water Savings (Gal/yr): For accelerated replacement (AR), this field represents annual water savings (gal/yr) associated with the measure during the second baseline period. Values equal '0' for non-AR permutations.

Sector: A group of customers that share common characteristics and barriers upon which energy efficiency strategies are based. The primary sectors are consistent with CEDARS: Residential, Commercial, Industrial, and Agricultural.

Name	Description
Ag	Agricultural
Com	Commercial
Ind	Industrial
Res	Residential

In this TRM, the nonresidential sectors are consolidated into one 'Nonresidential' label and the residential sector is aggregated into 2 labels: 'Residential' and 'Multi-family common' since multi-family common typically has much larger savings than the other residential dwelling building types

Source Description: Field maps to "Measure Version ID".

Standard: The standard condition refers to the code / industry standard practice—the market-minimum condition/equipment that would have replaced the non-functioning or non-existent existing condition instead of the energy efficient measure. This is the 1st baseline of normal replacement (NR) and new construction (NC) and the 2nd baseline of accelerated replacement (AR).

Standard Description: Description of the standard condition that is used to characterize the first baseline of NR and NC and the second baseline of AR.

Standard – Electric Savings (kWh/yr): Electric annual unit energy savings calculated as the difference in the annual unit energy consumption between the measure case and the standard base case.

Standard – Gas Savings (kWh/yr): Gas annual unit energy savings calculated as the difference in the annual unit gas consumption between the measure case and the standard base case.

Standard – Peak Demand Reduction (kW): Peak demand reduction calculated as the difference in the peak demand between the measure case and the standard base case.

Standard Technology Group: Technology Group defines the highest level of measure technology categorization of the standard base case.

See "Data Tables" section for the list of Technology Group.

Standard Technology ID: Technology ID is a subset of Technology Type, describing the standard base case technology. For modeled measures, this ID provides insight into the prototype model used to estimate the energy usage of the standard case.

Standard Technology Type: Technology Type is a subcategory to Technology Group to further characterize the standard base case. This field facilitates categorization of claims data but is expected to also help specify load shape data.

See "Data Tables" section for the list of Technology Types.

Standard – Water Savings (Gal): Annual unit water savings in gallons calculated as the difference in the annual unit water consumption between the measure case and the standard base case.

Statewide Measure ID: The ID identifies a unique measure package and is assigned based on the Use Category at the time of the measure package creation in eTRM.

The nomenclature of this identifier is shown below. This convention is tied to CEDARS categories.

Example	**SWAP001-01-1**			
Statewide Designator	**Use Category**	**Measure Number**	**Version Number *(Major)***	**Minor Version Number**
SW	**AP -** Appliance or Plug Loads **BE -** Building Envelope **CR -** Commercial Refrigeration **CA -** Compressed Air **FS -** Food Service **HC -** HVAC **LG -** Lighting **MI -** Miscellaneous **PR -** Process **RE -** Recreation **SV -** Service **WB -** Whole Building **WH -** Service & Domestic Hot Water **WP -** Water Pumping/Irrigation	Assigned by system administrator at measure package (MP) creation, starting at 001 for the first measure in the end use category.	Determined by measure developer when creating a new draft. Number starts at 01 for the first published version of the MP and increments by one for each new release cycle.	Automatically generated by the eTRM, starting at 1 for the first created draft of the MP. Number restarts with new major version number.

Statewide Measure ID (or Measure ID)

Measure Version ID (published data)

Measure Version ID (internal only)

Technology Group: Technology Group defines the highest level of measure technology categorization of the measure case.

See “Data Tables” section for the list of Technology Group.

Technology Type (USD): Technology Type is a subcategory to Technology Group to further characterize the measure case.

This field facilitates categorization of claims data but is expected to also help specify load shape data.

See “Data Tables” section for the list of Technology Type.

Total System Benefit (USD): This field represents the Net Total System Benefits (TSB), defined as the sum of all net energy benefits less the sum of all net additional supply costs. This field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

TRC Cost - No Administrative Cost (USD): This field represents the Net Total Resource Cost (TRC) without program costs. The TRC test considers both the program administrator’s and customer’s/participant’s perspectives. This field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

The “no administrative cost” version is included in the eTRM to provide a directional and best-case view of a permutation cost effectiveness without the consideration for the needs of a specific program.

TRC Ratio - No Administrative Cost (ratio): Cost effectiveness tests are defined in the California Standard Practice Manual. This field represents the Total Resource Cost (TRC) Ratio, which is a ratio of benefits to costs from both the program administrator’s and customer’s/participant’s perspectives. This field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

The “no administrative cost” version is included in the eTRM to provide a directional and best-case view of permutation cost effectiveness without the consideration for the needs of a specific program.

Unit Gas Infrastructure Benefits (USD): Per-unit benefits in dollars due to offsetting natural gas infrastructure costs, referred to as avoided gas infrastructure costs (AGIC), which is only applicable for new construction.

Unit Miscellaneous Benefits (USD): Per-unit miscellaneous benefits expressed in present-value dollars. The eTRM is not currently utilizing this field. In the future, this field can be used to report any other energy benefits, such as load shifting benefits, that have not been accounted for already.

Unit Miscellaneous Costs (USD): Per-unit miscellaneous costs expressed in present-value dollars. The eTRM is not currently utilizing this field. In the future, this field can be used to report any other energy costs that have not been accounted for already.

Unit Refrigerant Costs (USD): Per-unit benefits in dollars due to decreased refrigerant use or use of refrigerant with lower global warming potential. The unit refrigerant benefits are outputs of the Refrigerant Avoided Cost Calculator and Fuel-Sub Calculator (RACC-FSC); latest tool version can be found on CEDARS.

Unit Refrigerant Costs (USD): Per-unit costs in dollars due to increased refrigerant use or use of refrigerant with higher global warming potential. The unit refrigerant costs are outputs of the Refrigerant Avoided Cost Calculator and Fuel-Sub Calculator (RACC-FSC); latest tool version can be found on CEDARS.

Upstream Flag (True/False): Flag to indicate availability of upstream delivery channels. This field equals ‘True’ for ‘UpDeemed’ delivery type and ‘False’ for other delivery types.

Note: Effective from PY2026, this field will be retired due to being redundant with the new DEER2026 delivery types. This field will remain in eTRM permutations but set to blank.

Use Subcategory: Use Subcategory is a subsidiary of Use Category to further specify the measure in terms of how the measure is used.

See “Data Tables” section for the list of Use Subcategories.

Use Category: End-use category for the measure. *Note, this field should be consistent with the use category of the measure ID, but may not match identically.*

Name	Description	Name	Description	Name	Description
AppPlug	Appliance or Plug Load	HVAC	HVAC	ProcRefrig	Process Refrigeration
BldgEnv	Building Envelope	Irrigate	Irrigation	Recreate	Recreation
CompAir	Compressed Air	Lighting	Lighting	SCW	Service and Domestic Cold Water
ComRefrig	Commercial Refrigeration	ProcDist	Process Distribution	Service	Service
C&S	Codes & Standards	ProcDry	Process Drying	SHW	Service and Domestic Hot Water
FoodServ	Food Service	ProcHeat	Process Heat	WhlBldg	Whole Building

Version: This field designates the version of impacts reported based on CPUC policy. Version is a concatenation of the measure source (DEER or ExAnte = non-DEER) and the start year.

Version Source: The Version Source field is used to further define energy impacts beyond the Version field. For measures that adopted DEER savings values, this field equals the version source of the DEER energy impacts. For measures that derived savings from other sources, field equals ‘IOU Workpaper’.

See “Data Tables” section for the current list of Version Sources.

Water Energy Benefits (USD): This field represents the Net Water Energy Benefits and is based on the First/Second Baseline – IOU Embedded Water Energy Savings. Field is calculated by the California Energy Data and Reporting System (CEDARS) cost-effectiveness tool (CET), and the calculation methodology is described in the CET User Guide - CEDARS.

Water Measure Type: This field specifies whether a water savings measure is:

- Outdoor – Embedded water energy usage includes energy required for extraction, conveyance, treatment and distribution of supplied water.
- Indoor – Includes the same components as Outdoor but also includes the collection and treatment of wastewater.

If no water savings exist for the measure, this field is left blank.

DATA TABLES

The following Excel spreadsheet includes data tables that are too large to be included in this PDF.

Note: The attached may include tables synced in eTRM with other data sources and may include changes since publication of this TRM version. Please refer to ETRM | CPUC Support Tables for the most up-to-date versions of such tables.

eTRM - Data Tables.xlsx

APPENDIX

Permutations Summary Spreadsheets

The streamlined permutations are organized by the measure end-use category. Each file is named by the concatenation of the statewide designator ("SW") and the use category ID ("AP", "BE", etc.).

Appliance or Plug Load - SWAP:	SWAP_Summary.xlsx
Building Envelope - SWBE:	SWBE_Summary.xlsx
Compressed Air - SWCA:	SWCA_Summary.xlsx
Commercial Refrigeration - SWCR:	SWCR_Summary.xlsx
Food Service - SWFS:	SWFS_Summary.xlsx
HVAC - SWHC:	SWHC_Summary.xlsx
Lighting - SWLG:	SWLG_Summary.xlsx
Miscellanious - SWMI:	SWMI_Summary.xlsx
Process - SWPR:	SWPR_Summary.xlsx
Recreation - SWRE:	SWRE_Summary.xlsx
Service - SWSV:	SWSV_Summary.xlsx
Whole Building - SWWB:	SWWB_Summary.xlsx
Service & Domestic Hot Water - SWWH:	SWWH_Summary.xlsx
Water Pumping / Irrigation - SWWP:	SWWP_Summary.xlsx

Permutation Data Specification

The following Excel spreadsheet lists and defines all the data specification field (i.e., columns) in an eTRM permutation table and in the above POU streamlined permutation table.



eTRM - Data Specification.xlsx

Sunsetted/Deactivated Measures

A table of measure and/or measure versions that are expired for the POU TRM. Each row includes four flag fields to indicate the reasons for deactivation:

- **TRM Update**: Measures from the previous TRM that are no longer included in the new TRM.
- **Measure Version Update**: Measure version is expired. A new measure version with data updated for the latest program year is available. The latest version should be used.
- **Measure Sunsetted or Deactivated**: The entire measure package is sunsetted, or deactivated, without a replacement version for various reasons, such as code or market changes.

  The "Details for sunsetting measure (from eTRM)" column includes a detailed explanation for the sunsetting decision. *Note, t*hese measures were sunsetted in the eTRM prior to the first edition of the CMUA POU TRM in April; hence they were not included for the TRM even if the reason for sunsetting may not be applicable to the POUs.

- **Transfer to Different Measure:** Measure offerings are now offered under a new measure package.

Measures are grouped by the End Use category in the same manner as the Table of Contents. The "#.#" measure IDs refer to previous CMUA TRM measures, while "SWXX###-##" measure IDs are eTRM measures.

Note that eTRM also has a table of sunsetted measures, in the eTRM Stats page. However, in cases where there are conflicting dates for a measure, POUs should refer to the start/end/sunset dates in this POU TRM document and ignore the dates in eTRM Stats (as those date changes may be driven by CPUC requirements that POUs are not subject to).



TRM 2025-12 Sunsetted and New Measures List.xlsx

Note: The attached spreadsheet also includes a "New Measures" table with the list of measures that were added in this TRM edition. The "TRM Measure Lifecycle Status" flag whether measure is a sunsetted or new measure.