High-Performance Measure Details

Measure Name
Cold Climate Air Source Heat Pump

Use Category
SH – Cold Climate Air to Air Heat Pump

Effective Date
February 09, 2026

End Date
N/A

Version
3

Measure Code
LM401

Measure Stage
Early Adoption & High Priority Data Collection

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Technology Summary

Cold climate air-source heat pumps (ccASHPs) are advanced air-to-air heat pump systems designed to provide reliable, high-efficiency space heating and cooling in colder outdoor conditions while minimizing reliance on electric resistance or fossil-fuel backup heat. This High-Performance Measure (HPM) defines tiered requirements that verify cold-climate capability and encourage designs that use the heat pump as the primary heating system.

Compared to standard air-source heat pumps, ccASHPs are engineered to maintain stronger heating capacity and efficiency at low outdoor temperatures through variable-capacity (inverter-driven) compressors, enhanced refrigeration-cycle designs, optimized outdoor heat exchangers, and adaptive defrost/control strategies. When properly selected, sized, and configured, these systems can reduce auxiliary heat operation, improve part-load performance, and support electrification and demand-management goals—especially during winter peak conditions.

Alignment with CEDA Program Goals

The CEDA program supports the implementation of energy efficiency measures that advance Code Readiness's Long Term Tactical Plan (LTTP) to drive the goals of electrification, decarbonization, and load reduction.

Projects must meet one of the CEDA Inducement Requirements identified in the next section to receive an inducement and will be evaluated for the level of interest in metering to support Code Readiness Objectives.

This measure meets the CEDA program goals as follows:

- **Building partnerships with market stakeholders** by consulting on innovative technologies and best practices in energy efficiency, which can lead to the development of more effective solutions and accelerate the adoption of new technologies. As teams adopt the measure, this increases the volume of engineers able to design the equipment, contractors capable of installing the equipment, and owners able to operate the equipment.
- **Increasing the supply of high-performance measures and all-electric buildings** by combining electrification with energy efficiency that can result in projects implementing measures to achieve greater energy savings, reduced emissions, and overall improved building performance. As more buildings install cold climate air to air heat pumps, it helps expand market availability, strengthens installer familiarity, and supports broader adoption across both new construction and existing buildings.
- **Increasing the demand for high-performance measures and all-electric buildings** by pushing for electrification that drives the need for technological advancements, supporting economic growth opportunities through innovation, and raising awareness of the benefits of electrification to increase consumer adoption. As demand in the market increases for newer technologies, the long-term benefit is increased demand for manufacturers and suppliers to provide additional options available in the market.
- **Advancing new high-performance measure technology** by raising public awareness about new technologies and their benefits, helping build acceptance and demand through market support advocacy efforts that can influence stakeholder decisions that enable technological innovation.
- **Providing Codes & Standards with projects of interest** to collect metered data that will inform future California energy codes.

CEDA Inducement Requirements

The following inducement requirements are designed to accelerate market adoption of cold climate air source heat pumps (ccASHPs) by enhancing energy efficiency, lowering operational costs, and reducing carbon emissions while reducing reliance on auxiliary heating. Project inducements will be determined by assessing each project's projected energy-savings impacts and its ability to support broader electrification adoption.

This HPM offers two independent design tier levels: **Essential — Cold Climate Air Source Heat Pump Systems** and **Premium — High-Performance Cold Climate Air Source Heat Pump Systems**. Project teams must comply with one design level—Essential or Premium—to be eligible. The tiers are independent; projects are not required to meet both. Refer to the tier-specific sections that follow for the applicable System Design Requirements and Supporting Documentation Requirements for the option you are claiming.

System Design Requirements

1. **Essential level**: Cold Climate Air Source Heat Pump Systems
   - 1.1. Eligible Equipment
     - 1.1.1. For eligibility, this measure applies to single-zone air-to-air electric packaged and split heat pump systems designed for space heating and cooling in cold climate conditions. Single-zone means the system serves one thermal zone/indoor unit per refrigeration circuit and does not operate as an integrated multi-zone refrigerant system. Eligible equipment types include:
       - 1.1.1.1. **Central air-source heat pumps** (ducted and ductless)
       - 1.1.1.2. **Packaged terminal heat pumps** (PTHPs)
       - 1.1.1.3. **Single package vertical heat pumps** (SPVHPs)
       - 1.1.1.4. Multi-zone heat pump systems and VRF systems are not eligible under this measure.
     - 1.1.2. The heat pump system shall be certified by the AHRI in accordance with the applicable AHRI standard for each equipment type:

Equipment Type	Required Certification
Central Air Conditioning Heat Pump	AHRI Standard 210/240
Packaged Terminal Heat Pump	AHRI Standard 310/380
Single Package Vertical Heat Pump	AHRI Standard 390

     - 1.1.3. Equipment certification shall be verifiable in the **AHRI Directory of Certified Product Performance**[1] and shall reflect the installed system configuration (including matched system combinations where applicable).
   - 1.2. Performance Requirements
     - 1.2.1. The heat pump system shall meet or exceed the following minimum AHRI-rated heating and cooling efficiency thresholds, as applicable to the system type.
     - 1.2.2. Central Air Conditioning Heat Pump:
       - 1.2.2.1. Non-Ducted Systems
         - 1.2.2.1.1. **HSPF2 ≥ 8.5** (10 HSPF equivalent)
         - 1.2.2.1.2. **SEER2 ≥ 15** (15 SEER equivalent)
       - 1.2.2.2. Ducted Systems
         - 1.2.2.2.1. **HSPF2 ≥ 7.7** (9 HSPF equivalent)
         - 1.2.2.2.2. **SEER2 ≥ 14.3** (15 SEER equivalent)
       - 1.2.2.3. **COP at 5°F ≥ 1.75** at maximum capacity operation
       - 1.2.2.4. Models rated under AHRI 210/240 with voluntary base pan heater engagement that do not meet the HSPF2 requirement shall qualify if the identical model without a base pan heater meets the HSPF2 requirement (and all other applicable requirements)
     - 1.2.3. Packaged Terminal Heat Pump: **COP at 5°F ≥ 1.75** at maximum capacity operation.
     - 1.2.4. Single Package Vertical Heat Pump: **COP at 5°F ≥ 1.75** at maximum capacity operation.
   - 1.3. Cold Climate Heat Pump Low Ambient Performance
     - 1.3.1. The heat pump system shall be ENERGY STAR® certified and shall carry the ENERGY STAR Cold Climate (ccASHP) designation, verifiable through the ENERGY STAR product listings for the installed make/model (and matched system configuration, where applicable).
2. **Premium level**: High-Performance Cold Climate Air Source Heat Pump Systems
   - 2.1. Eligible Equipment
     - 2.1.1. Premium eligibility is limited to single-zone central air-source heat pump systems (ducted or ductless) designed for primary space heating in cold conditions. Multi-zone heat pump systems and VRF systems are not eligible under this measure.

[1] AHRI Directory can be found via the following link: *https://www.ahridirectory.org/*

2.1.2. The heat pump system shall be AHRI-certified to AHRI 210/240, with certification verifiable in the **AHRI Directory of Certified Product Performance** and reflecting the installed system configuration.

2.2. Premium Performance and Controls

2.2.1. **Deep-Cold Efficiency**: Provide manufacturer extended performance data demonstrating **COP ≥ 2.0 at 5°F at maximum heating capacity.** COP shall reflect compressor operation only (exclude any supplemental heat).

2.2.2. **Primary Heat Design Intent**: The heat pump shall be designed to meet 100% of the calculated design heating load at the outdoor design temperature under normal operation. If supplemental heat is installed, it shall be emergency/safety only, and auxiliary heat lockout shall be enabled where supported to prioritize compressor heating.

2.2.3. **Cold-Climate Features**: The system shall include cold-climate performance features (e.g., Enhanced Vapor Injection (EVI) or equivalent) and adaptive/optimized defrost controls intended to maintain stable low-temperature heating operation and minimize unnecessary defrost impacts.

2.2.4. **DR Readiness**: The system shall be demand response (DR) ready consistent with Title 24, Part 6, Section 110.12(a), including the ability to receive an external DR signal and implement controlled setpoint adjustments with stable recovery.

Supporting Documentation Requirements

Projects must submit documentation sufficient to verify that the installed heat pump system meets the selected design tier. Documentation is intended to confirm (1) eligible equipment type and certified performance, (2) cold-climate qualification, and (3) tier-specific controls and design intent. For Premium projects, additional documentation is required to demonstrate deep-cold efficiency, primary-heat design intent, and demand-response readiness.

1. Essential Level — Supporting Documentation

1.1. Equipment Eligibility and Certification

1.1.1. Equipment schedule / submittals identifying manufacturer, model number(s), system type (central / PTHP / SPVHP), and served zone(s).

1.1.2. AHRI certificate (or directory printout) showing the system is certified under the applicable AHRI standard (210/240, 310/380, or 390) and reflects the installed configuration (including matched combinations where applicable).

1.1.3. Installed configuration confirmation (plan notes, equipment schedule, or submittal summary) demonstrating the system is single-zone and not an integrated multi-zone/VRF system.

1.2. Performance Compliance

1.2.1. Manufacturer data sheets or AHRI documentation demonstrating compliance with required HSPF2 / SEER2 thresholds (as applicable) and COP at 5°F ≥ 1.75 at maximum capacity operation.

1.3. Cold Climate Designation

1.3.1. Evidence the system is ENERGY STAR® certified and carries the ENERGY STAR Cold Climate (ccASHP) designation, verifiable via ENERGY STAR product listings for the installed make/model (and matched system configuration, where applicable).

1.4. Installation Evidence

1.4.1. Photo documentation of installed indoor and outdoor units (or packaged units), with nameplates visible where practical.

2. Premium Level — Supporting Documentation

2.1. Equipment Eligibility and Certification

2.1.1. Equipment schedule / submittals identifying manufacturer and model number(s) for the single-zone central air-source heat pump system (ducted or ductless).

2.1.2. AHRI 210/240 certificate (or directory printout) confirming the system is certified and reflects the installed configuration (including matched combinations where applicable).

2.2. Deep-Cold Efficiency Verification

2.2.1. Manufacturer extended performance data (or engineering performance tables) demonstrating COP ≥ 2.0 at 5°F at maximum heating capacity.

2.2.2. Documentation must clearly indicate that the COP value reflects compressor/heat pump operation only, excluding any supplemental heat contribution.

2.3. Primary Heat Design Intent and Supplemental Heat Limits

2.3.1. A brief design narrative or calculation excerpt confirming the heat pump is designed to meet 100% of the calculated design heating load at the outdoor design temperature under normal operation.

2.3.2. If supplemental heat is included, provide documentation that it is emergency/safety only (e.g., sequence of operation excerpt, control narrative, or schedule notes).

2.3.3. Auxiliary heat lockout evidence where supported (screenshot, configuration export, or controls submittal showing lockout enabled / conservative enable settings).

2.4. Cold-Climate Features and Defrost Strategy

2.4.1. Manufacturer documentation indicating the system includes cold-climate performance features (e.g., EVI or equivalent) and adaptive/optimized defrost controls (cut sheets, engineering guide excerpt, or manufacturer feature summary).

2.5. Demand-Response Readiness (Title 24 110.12(a))

2.5.1. Evidence the system is DR-ready, such as one or more of the following:

2.5.2. Controls submittal or sequence indicating DR capability (setpoint adjustment + controlled recovery)

2.5.3. Screenshot/configuration page showing DR enablement or supported interface

2.5.4. Documentation identifying the DR communication pathway (utility program/aggregator/OpenADR-capable gateway/approved interface), where applicable

2.6. Installation Evidence

2.6.1. Photo documentation of installed indoor/outdoor equipment and controls interface (thermostat/controller) sufficient to confirm installed scope.

Incremental Measure Cost

The Incremental Measure Cost (IMC) represents the incremental cost of installing a cold climate air-to-air heat pump system relative to a non–cold climate heat pump of equivalent nominal capacity.

Consistent with CEDA's market support objectives, incremental costs are presented using normalized units and representative market pricing suitable for new construction and major alterations, where individual equipment invoices are not typically available. Cost estimates reflect typical material, installation, and commissioning efforts required to achieve the measure requirements and are reviewed and updated periodically based on market data.

Base Case

The base case assumes installation of a code-compliant non-cold climate air-to-air heat pump system of equivalent nominal capacity and indoor unit count.

Measure Case

The measure case is a ccASHP that meets the following design criteria:

System Type	Design Criteria
Non-Ducted System (Ductless)	≥ 8.5 HSPF2 (≈10 HSPF), ≥ 15 SEER2, ≥ 1.75 COP @ 5°F
Ducted System	≥ 7.7 HSPF2 (≈9 HSPF), ≥ 14.3 SEER2 (≈15 SEER), ≥ 1.75 COP @ 5°F
Packaged Terminal Heat Pump (PTHP)	COP ≥ 1.75 @ 5°F
Single Package Vertical Heat Pump (SPVHP)	COP ≥ 1.75 @ 5°F

IMC Values and Normalization

Normalized Cost Basis: $/ton

Essential Level – Incremental Measure Cost

System Type	Incremental Cost
Non-Ducted System (Ductless)	$500 per ton
Ducted System	$550 per ton
Single Package Vertical Heat Pump (SPVHP)	$600 per ton
Packaged Terminal Heat Pump (PTHP)	$650 per ton

Premium Level – Incremental Measure Cost

System Type	Incremental Cost
Non-Ducted System (Ductless)	$800 per ton
Ducted System	$850 per ton

The Premium design level builds upon the Essential configuration by enabling demand response readiness but also requires equipment that utilizes EVI or functionally equivalent approaches that enable better performance at the 5°F threshold.

These values represent typical incremental costs for new construction or major alterations and is intended for program inducement calibration rather than project-specific cost reconciliation. Costs are developed by estimating typical equipment, installation, and commissioning costs required to achieve cold climate performance relative to standard systems of the same type.

Sources

IMC values are informed by a combination of publicly available market pricing, industry cost references, and program experience, and are intended to reflect typical market conditions rather than project-specific pricing, including:

- Cold Climate Heat Pump Cost: Comprehensive Guide To Pricing, Savings, And Installation (2025)
- Cold Climate Heat Pump Cost: Factors, Savings, and Installation Insights for Homes (2025)
- RSMeans® Electrical and Controls Installation Cost Data (2024–2025)
- NEEP Guide To Sizing & Selecting Air-Source Heat Pumps in Cold Climates (2020)

Code Readiness Objectives

Cold climate air-to-air heat pumps are well suited for applications in which heating design outdoor air temperatures are moderate while performing efficiently in climates where winter conditions routinely approach or fall below freezing. Cold climate ASHPs can play a meaningful role in managing winter electrification impacts, particularly by reducing peak heating demand and limiting reliance on supplemental electric or fossil-fuel heating.

By maintaining higher heating capacity and efficiency at lower outdoor temperatures, ccASHPs have the potential to mitigate winter electric peak growth associated with space-heating electrification, thereby reducing upstream impacts on transmission and distribution infrastructure. This measure is intended to advance electrification and greenhouse gas emissions reductions by targeting the following objectives:

- Increase adoption of electric air-to-air heat pump systems in commercial and residential applications suitable for cold climate performance.
- Reduce reliance on electric resistance and gas-fired supplemental heating through system designs that prioritize verified low-temperature heat pump performance and appropriate control strategies.

Code Readiness Site Monitoring

If selected for Code Readiness monitoring, equipment energy consumption and mechanical system performance may be monitored on-site for a period of up to 12 months. To support performance evaluation and data collection, projects shall provide reasonable access for the installation and operation of metering, sensors, and communication equipment.

Projects equipped with a Building Automation System (BAS), Energy Management System (EMS), or equivalent platform should enable integration of advanced metering devices through the existing system to facilitate data collection and remote access. For projects without a BAS or EMS, the Code Readiness team may install temporary stand-alone data loggers, sensors, and communication equipment as needed to monitor system performance for the duration of the monitoring period.

Instrumentation may be installed or supplemented, where necessary, to measure key system and equipment parameters sufficient to evaluate cooling system performance and operational characteristics. All monitoring equipment will be temporary and installed in a manner that minimizes disruption to normal building operations.

Data Benefits

In colder climates, extended-range heat pumps are now available to maintain some compressor operations at more extreme temperatures.

- This measure will determine if equipment with extended ranges will result in lower electrical consumption in moderate climates.
- Technology provides a potential way to eliminate backup electric heating in more building applications, both new and existing buildings, with higher efficiency and lower operational heat pump.
- Technology could improve the operational part-load efficiency of heat pump systems to drive higher energy cost savings with marginal increases between a standard range unit in first costs.

Sample Data Points

A sample set of data points that would ideally be collected is provided below for reference. This list will be re-developed for each project based on the infrastructure and need of the monitoring effort:

Data Points to Meter	Unit	Additional Specifications
Compressor power draw	kW	Maximum and minimum values, measured via CT on compressor circuit
Supplemental electric resistance heat power draw	kW	Measure via separate CT on resistance heat circuit to distinguish from compressor load
Outdoor air temperature	°F	Measure via outdoor sensor
Indoor zone air temperature	°F	Measure via internal sensor

Code Reference

2025 CA Title 24, Part 6, Section 110.2– Mandatory Requirements for Space-Conditioning Equipment

110.2(b) Controls for heat pumps with supplementary heaters*:*

Control requirements for heat pumps with supplementary heaters in single-family residential buildings are specified in Section 150.0(h)7 and Section 150.0(i)2. Heat pumps with supplementary heaters in nonresidential and multifamily buildings shall have controls:

1. *That prevent supplementary heater operation when the heating load can be met by the heat pump alone; and*
2. *In which the cut-on temperature for heat pump heating is higher than the cut-on temperature for supplementary heating, and the cut-off temperature for heat pump heating is higher than the cut-off temperature for supplementary heating.*

Exception 1 to Section 110.2(b): *The controls may allow supplementary heater operation during:*

A. Defrost; and
B. Transient periods such as start-ups and following room thermostat setpoint advance, if the controls provide preferential rate control, intelligent recovery, staging, ramping or another control mechanism designed to preclude the unnecessary operation of supplementary heating.

Exception 2 to Section 110.2(b): *Room air-conditioner heat pumps.*

110.2(c) Thermostats*:*

All heating or cooling systems not controlled by a central energy management control system (EMCS) shall have a setback thermostat.

1. *Setback capabilities. All thermostats shall have a clock mechanism that allows the building occupant to program the temperature setpoints for at least four periods within 24 hours. Thermostats for heat pumps shall meet the requirements of Section 110.2(b).*

Exception 1 to Section 110.2(c): *Gravity gas wall heaters, gravity floor heaters, gravity room heaters, noncentral electric heaters, fireplaces or decorative gas appliances, wood stoves, room air conditioners and room air conditioner heat pumps.*

2025 CA Title 24, Part 6, Section 110.12– Mandatory Requirements for Demand Management

110.12(a) Demand responsive controls*:*

1. *All demand responsive controls shall be either:*
   A. *A certified OpenADR 2.0a or OpenADR 2.0b Virtual End Node (VEN), as specified under Clause 11, Conformance, in the applicable OpenADR 2.0 Specification; or a certified Baseline Profile OpenADR 3.0 Virtual End Node; or*
   B. *Certified to the Energy Commission as being capable of responding to a demand response signal from a certified OpenADR 2.0b or a certified Baseline Profile OpenADR 3.0 Virtual End Node by automatically implementing the control functions requested by the Virtual End Node for the equipment it controls.*

2. *All demand responsive controls shall be capable of communicating with the VEN using a wired or wireless bidirectional communication protocol.*
3. *RESERVED*
4. *When the demand response signal is disabled or unavailable, all demand responsive controls shall continue to perform all other control functions provided by the control.*
5. *Demand responsive control thermostats shall comply with Reference Joint Appendix 5 (JA5), Technical Specifications for Occupant Controlled Smart Thermostats.*

110.12(b) Demand responsive zonal HVAC controls*:*

Nonresidential HVAC systems with DDC to the Zone level shall be programmed to allow centralized demand shed for noncritical zones as follows:

6. *The controls shall have a capability to remotely increase the operating cooling temperature set points by 4 degrees or more in all noncritical zones on signal from a centralized contact or software point within an Energy Management Control System (EMCS).*
7. *The controls shall have a capability to remotely decrease the operating heating temperature set points by 4 degrees or more in all noncritical zones on signal from a centralized contact or software point within an EMCS*
8. *The controls shall have capabilities to remotely reset the temperatures in all noncritical zones to original operating levels on signal from a centralized contact or software point within an EMCS.*
9. *The controls shall be programmed to provide an adjustable rate of change for the temperature increase, decrease, and reset.*
10. *The controls shall have the following features:*
    A. *Disabled. Disabled by authorized facility operators; and*
    B. *Manual control. Manual control by authorized facility operators to allow adjustment of heating and cooling set points globally from a single point in the EMCS; and*
    C. *Automatic Demand Shed Control. Upon receipt of a demand response signal, the space-conditining systems shall conduct a centralized demand shed, as specified in Sections 110.12(b)1 and 110.12(b)2, for noncritical zones during the demand response period.*

2025 CA Title 24, Part 6, Section 120.2– Required Controls for Space-Conditioning Systems

120.2(b) Criteria for zonal thermostatic controls*:*

4. Thermostatic controls for all single zone, air conditioners and heat pumps shall comply with the requirements of Sections 110.2(c) and 110.12(a) and, if equipped with DDC to the Zone level, with the Automatic Demand Shed Controls of Section 110.12(b).

Exception 1 to Section 120.2(b)4: *Systems serving non-covered process loads that must have constant temperatures to prevent degradation of materials, a process, plants or animals.*

Exception 2 to Section 120.2(b)4: *Package terminal air conditioners, package terminal heat pumps, room air conditioners and room air conditioner heat pumps.*

Exception 3 to Section 120.2(b)4: *Systems serving healthcare facilities.*

2025 CA Title 24, Part 6, Section 140.4– Prescriptive Requirements for Space Conditioning Systems

140.4(g) Electric resistance heating*:*

Electric resistance heating systems shall not be used for space heating.

Exception 1 to Section 140.4(g): *Where an electric resistance heating system supplements a heating system in which at least 60 percent of the annual energy requirement is supplied by site-solar or recovered energy.*

Exception 2 to Section 140.4(g): *Where an electric resistance heating system supplements a heat pump heating system, and the heating capacity of the heat pump is more than 75 percent of the design heating load calculated in accordance with Section 140.4(a) at the design outdoor temperature specified in Section 140.4(b)4.*

Exception 3 to Section 140.4(g): *Where the total capacity of all electric resistance heating systems serving the entire building is less than 10 percent of the total design output capacity of all heating equipment serving the entire building.*

Exception 4 to Section 140.4(g): *Where the total capacity of all electric resistance heating systems serving the entire building, excluding those allowed under Exception 2, is no more than 3 kW.*

Exception 5 to Section 140.4(g): *Where an electric resistance heating system serves an entire building that is not a hotel/motel building; and has a conditioned floor area no greater than 5,000 square feet; and has no mechanical cooling; and is in an area where natural gas is not currently available.*

Exception 6 to Section 140.4(g): *Heating systems serving as emergency backup to gas heating equipment.*

Exception 7 to Section 140.4(g): *Supplemental electric resistance heating systems complying with Section 140.4(a)3C.*

2025 CA Title 24, Part 6, Section 160.3– Mandatory Requirements for Space Conditioning Systems in Multifamily Buildings

160.3(c) Heat pump controls*:*

All heat pumps with supplementary electric resistance heaters shall be installed with controls that comply with Section 110.2(b).

Eligible Climate Zones and Building Types

Eligible Climate Zones

This high-performance measure is applicable in all **California Climate Zones 1-16** (Title 24); however, there is high interest in projects from climate zones 5, 11, 13, 14, and 16. Applicants must identify the project's climate zone in the submittal.

Eligible Building Types

This high-performance measure applies to:

- **High-Rise Multifamily**: Buildings with **four (4) or more habitable stories above grade**.
- **Nonresidential**: Commercial, public, agricultural, and industrial facilities (e.g., offices, retail, lodging, education, healthcare, food service, warehouses, manufacturing, civic buildings).

Eligible Project Scopes

This high-performance measure applies to:

- **New construction**, **additions**, and **major alterations/retrofits** installing qualifying cold climate air-to-air heat pump systems.

Measure Exclusions

This high-performance measure excludes the following system types and applications:

- Water source heat pumps
- Water-to-water heat pumps
- Air-source heat pumps used primarily for process heating
- Air-source heat pumps used primarily for service/domestic hot water heating
- Multi-split / multi-zone air-to-air heat pump systems (i.e., one or more outdoor units serving multiple indoor units through a shared refrigerant circuit), including paired or grouped mini-splits that do not qualify as single-zone systems
- Variable Refrigerant Flow (VRF) heat pump systems and other AHRI 1230-certified multi-zone refrigerant systems

Projects installing systems outside the scope of this measure (including VRF or multi-zone systems) may be evaluated under the applicable CEDA Cold Climate VRF / Multi-Zone Heat Pump HPM, where available.

Projects participating under this measure are not eligible to concurrently claim incentives under the CEDA Defrost Controls for Air-to-Air Heat Pump HPM for the same installed equipment or system scope.

Reviewer Checklist

High-Performance Measure Review Checklist: Cold Climate Air Source Heat Pump

Checklist Description: This checklist captures the elements that must be present in the project design to be eligible for the high-performance measure inducement or consideration for additional site metering.

Project Name: _____ **Review Date:** _____

Assessment:

- ☐ Approved
- ☐ Not approved

Notes:

Reviewer: _____ **Signature:** _____

System Design Requirements – Essential Level	Comments
☐ **Eligible system type (single-zone):** System is single-zone and not integrated multi-zone/VRF (§1.1.1, §1.1.1.4).	
☐ **Eligible equipment category**: Central ASHP (ducted or ductless) or PTHP or SPVHP (§1.1.1.1–§1.1.1.3).	
☐ **AHRI certification**: Certified to applicable AHRI standard and verifiable in AHRI Directory (§1.1.2–§1.1.3): ○ Central ASHP: AHRI 210/240 (§1.1.2) ○ PTHP: AHRI 310/380 (§1.1.2) ○ SPVHP: AHRI 390 (§1.1.2)	
☐ **Minimum efficiency compliance**: Meets applicable thresholds (§1.2.1–§1.2.4): ○ Central ASHP (non-ducted): HSPF2 ≥ 8.5 and SEER2 ≥ 15 (§1.2.2.1) ○ Central ASHP (ducted): HSPF2 ≥ 7.7 and SEER2 ≥ 14.3 (§1.2.2.2) ○ COP @ 5°F ≥ 1.75 at max capacity (Central) (§1.2.2.3) ○ PTHP COP @ 5°F ≥ 1.75 (§1.2.3) ○ SPVHP COP @ 5°F ≥ 1.75 (§1.2.4)	
☐ **Base pan heater exception** (if applicable): Qualifying alternate model basis verified (§1.2.2.4).	
☐ **ENERGY STAR ccASHP designation**: ENERGY STAR® certified and carries ENERGY STAR Cold Climate (ccASHP) designation (§1.3.1).	

System Design Requirements – Premium Level	Comments
☐ **Eligible system type**: Single-zone central ASHP only (ducted or ductless); multi-zone/VRF not eligible (§2.1.1).	
☐ **AHRI certification**: AHRI 210/240 certified; installed configuration reflected and verifiable (§2.1.2–§2.1.2).	
☐ **Deep-cold efficiency**: COP ≥ 2.0 @ 5°F at max heating capacity; heat pump only (§2.2.1).	
☐ **COP basis confirmed**: COP excludes supplemental heat contribution (§2.2.1).	
☐ **Primary heat design intent**: 100% design heating load at outdoor design temperature under normal operation (§2.2.2).	
☐ **Backup heat limits**: Emergency/safety only if installed (§2.2.2).	
☐ **Aux heat lockout enabled**: Where supported (§2.2.2).	
☐ **Cold-climate features + defrost**: EVI (or equivalent) and adaptive/optimized defrost included (§2.2.3).	

- ☐ **DR readiness**: DR-ready consistent with Title 24 §110.12(a); can receive DR signal and perform controlled setpoint adjustment + stable recovery (§2.2.4).

Supporting Documentation Requirements – Essential Level	Comments
☐ Equipment schedule/submittals provided (manufacturer, model[s], system type, served zone[s]) (§1.1.1).	
☐ AHRI certificate/directory printout provided for installed configuration (§1.1.2–§1.1.3).	
☐ Single-zone confirmation provided (not multi-zone/VRF) (§1.1.1, §1.1.1.4).	
☐ Performance documentation provided for required HSPF2/SEER2 (as applicable) and COP @ 5°F ≥ 1.75 (§1.2.1–§1.2.4).	
☐ ENERGY STAR ccASHP designation evidence provided (§1.3.1).	
☐ Installation photo evidence provided (nameplates visible where practical) (§1.4.1).	

Supporting Documentation Requirements – Premium Level	Comments
☐ Equipment schedule/submittals provided for single-zone central ASHP (ducted or ductless) (§2.1.1).	
☐ AHRI 210/240 certificate/directory printout provided for installed configuration (§2.1.2).	
☐ Extended performance data provided showing COP ≥ 2.0 @ 5°F at max capacity (§2.2.1).	
☐ COP basis confirmed (heat pump only; excludes supplemental heat) (§2.2.1).	
☐ Design intent / load coverage evidence provided (100% design heating load at outdoor design temperature) (§2.2.2).	
☐ Emergency-only backup heat evidence provided if supplemental heat exists (§2.2.2).	
☐ Aux heat lockout evidence provided where supported (§2.2.2).	
☐ Cold-climate features + defrost documentation provided (EVI/equivalent + adaptive/optimized defrost) (§2.2.3).	
☐ DR-ready evidence provided (one or more) consistent with Title 24 §110.12(a) (§2.2.4): ○ Controls submittal/sequence showing DR setpoint adjustment + controlled recovery ○ Screenshot/config page showing DR enablement/interface ○ DR communication pathway documentation, where applicable ○ Installation photo evidence provided (equipment + controls interface) (§2.6.1).	

Version History Log

Version	Effective Date	End Date	Change Description
1	June 14, 2023	May 16, 2024	N/A
2	May 17, 2024	February 08, 2026	Removed VRF systems into separate measure
3	February 09, 2026	Current	Updated format, established Essential/Premium tier requirements and supporting documentation; added incremental cost, updated code references, added eligibility/exclusions and created reviewer checklist.