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**MEUS Comments on the 2025 T24 Energy Code Pre-Rulemaking
Express Terms**

Additional submitted attachment is included below.



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November 17, 2023

California Energy Commission (CEC)
Docket Unit, MS-4
Docket No. 22-BSTD-01
1516 Ninth Street
Sacramento, California 95814-5512

(Submitted electronically to [Docket 22-BSTD-01](#))

Re: MEUS Comments on Title 24-2025 Pre-Rulemaking Express Terms [Docket No. 22-BSTD-01]

Dear Energy Commission Staff,

Mitsubishi Electric US, Inc. ("MEUS"), a manufacturer of Variable-speed Mini-splits and Multi-splits (VSMS) and Variable Refrigerant Flow (VRF) heating and cooling systems, appreciates the opportunity to submit comments in response to the California Energy Commission's Pre-Rulemaking draft of the Express Terms for the 2025 update to the Building Energy Efficiency Standards contained in the California Code of Regulations (CCR), Title 24, Part 6.

COMMENT ON TABLES 110.2-F and 110.2-G:

Effective January 1, 2024, federal efficiency values and the regulated efficiency metric for VRF products will change. AHRI Standard 1230-2021, "*Standard for Performance Rating of Variable Refrigerant Flow (VRF) Multi-Split Air-Conditioning and Heat Pump Equipment,*" is now referenced in ASHRAE Standard 90.1-2022 and is also cited as the federal test procedure. Changes made to the test procedure during the DOE negotiated rulemaking resulted in making IEER values more stringent compared to the previous standard, so DOE and ASHRAE maintained the same IEER levels. ASHRAE also considered how the test procedure changes affected EER values and reduced those by 5% to 7% for the 2022 edition. Accordingly, our recommendation is that the 2025 T24 adopt the efficiencies for VRF equipment shown as "on or after 1/1/24" in ASHRAE 90.1-2022 Tables 6.8.1-8, *Electrically Operated Variable-Refrigerant-Flow Air Conditioners*, and 6.8.1-9, *Electrically Operated Variable-Refrigerant-Flow and Applied Heat Pumps*.

COMMENT ON SECTION 120.2(I)

Section 120.2(I) HVAC Hot Water Temperature, states that zones that use hot water for space heating shall be designed for a hot water supply temperature of no greater than 130 °F.

The Codes and Standards Enhancement (CASE) Initiative 'Nonresidential HVAC Space Heating' final report states "The purpose of this measure is to place a mandatory limit on design space heating hot water supply temperatures (HWST) of 130 °F for new construction and additions and alterations. The measure would apply to all nonresidential buildings that use hydronics to provide comfort space heating and reheat. This proposal would apply to systems that use gas boilers as well as all-electric designs." The

report also states, “The purpose of this measure will be to ensure that starting with the 2025 edition of Title 24 Part 6, the state does not continue adding hydronic systems with HWST *above 140 °F* to the building stock.” (emphasis added)

New [“hybrid” VRF heat pump technology](#) has been introduced which may distribute maximum leaving water temperature of 140 °F to indoor coils used for space heating. This equipment is all-electric, highly efficient, and can provide simultaneous heating and cooling. Our recommendation is that either an exception be provided for heat pumps using water for space heating, or that the maximum water supply temperature be set at 140 °F, so as not to prevent this new technology from complying with T24.

COMMENT ON SECTION 150.0(i)2

Our research and field/user feedback has shown Mitsubishi Electric that simpler thermostats with user-friendly interfaces are preferred by occupants and allow for better equipment performance in alignment with the occupant expectations. Thermostats are hardware. Updating them to address new and evolving guidance from regulatory agencies puts significant pressure on Mitsubishi product development, our own and our partner’s training & education efforts, and our contractors’ installation practices. We’d also highlight that HVAC controls involve more than just the thermostat on the wall. Third party systems, central control system, and web enabled/app controls and interfaces are all viable options for communicating system settings, system performance, and outside weather to occupants, often in more dynamic and engaging ways than can be accomplished solely with a wall mounted thermostat.

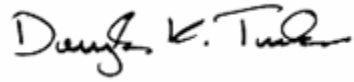
Therefore, given both logistical challenges of designing and manufacturing new thermostat hardware as well as current efforts already underway to improve our web enabled/app controls, we would urge the Commission to modify the Express terms with the additional language offered below.

Section: 150.0(i)2 [proposed additions underlined]

2. Thermostats that are applied to heat pumps with supplemental heating. In addition to the requirements in Section 150.0(1)A, thermostats **or the associated controls system controlling heat pumps** with electric resistance supplementary heat or gas furnace supplementary heat shall comply with the following requirements:
 - A. The thermostat **or the associated controls system** shall receive outdoor air temperature from an outdoor air temperature sensor or from an internet weather service.
 - B. The thermostat **or the associated controls system** shall display the outdoor air temperature.
 - C. As described in 150.0(h)8, the thermostat **or the associated controls system** and heat pump shall lock out supplementary heat when the outdoor air temperature is above 35°F.
 - D. The thermostat **or the associated controls system** shall have an indicator to notify when supplementary heat or emergency heat is in use.
 - E. During defrost or when the user selects emergency heating, supplementary heat operation is permitted above 35°F.
 - F. The installer shall certify on the Certificate of Installation that the system has been tested in accordance with the testing procedure found in the CF2R.

MEUS appreciates the opportunity to provide these comments and we look forward to the completion of the future Title 24 standard.

Best regards,

A handwritten signature in black ink that reads "Douglas K. Tucker". The signature is written in a cursive style with a large initial 'D' and a distinct 'K'.

Douglas K. Tucker
Director, Industry and Government Relations