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## **Daikin 15 Day Comments on 2025 Energy Code Rulemaking**

*Additional submitted attachment is included below.*



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June 27, 2024

Mr. David Hochschild, Chair  
Dr. Andrew McAllister, Commissioner  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814-5512

**Re: Docket 24-BSTD-01 15-Day Comment Period Response**  
(Submitted electronically to Docket 24-BSTD-01: Daikin 15 Day Comments on 2025 Energy Code Rulemaking)

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Dear Chairman Hochschild and Commissioner Andrew McAllister,

Daikin U.S. Corporation (“Daikin”) respectfully submits this letter in response to the California Energy Commission (“CEC”) 2025 15-day Express Term proposed changes to Energy Code (Title 24, Part 6), published on June 13, 2024. Daikin U.S. Corporation is a subsidiary of Daikin Industries, Ltd., the world’s largest air conditioning equipment manufacturer. The Daikin Group includes Daikin Applied, Daikin North America LLC, and Goodman Manufacturing Company, L.P. We understand the amount of effort CEC has put into these updates and we appreciate the opportunity to provide these comments.

As Daikin noted in our comments related to the California Energy Commission 2025 45-day Express Term proposed changes to Energy Code (Title 24, Part 6), Daikin reiterates its support of CEC’s expansion of the use of heat pumps to further California’s need for decarbonization and providing effective energy use reduction. Daikin believes that heat pumps are the proven technology to achieve substantial GHG reduction and energy savings in both residential and nonresidential buildings and appreciates the inclusion of the heat pump baselines mandating use of heat pumps.

Daikin appreciates CEC’s modification to **Sections 150.0(h)6 and 160.3(b)7** regarding defrost. The clarification that the requirement for a 90-minute delay timer is only applicable to products including an “installer-adjustable” defrost delay timer ensures that equipment that uses demand defrost controls that initiate defrost based on measured performance parameters will not be negatively impacted. However, we continue to have concerns related to overly prescriptive compliance options for schools and offices and the use of the Energy Efficiency Ratio 2 (“EER2”) for sizing Photovoltaic (“PV”) systems with Variable Speed Heat Pumps (“VSHPs”), explained below. We also wish to comment on the changes to the Efficiency Tables within this rule.

**Section 140.4 – Prescriptive Requirements for Space Conditioning Systems**

Daikin reiterates that the proposed requirements are overly prescriptive and limit consumer choice that may provide important energy efficiency improvements. The choice of equipment is a business level decision which should be made on a case-by-case basis, and the CEC should not exclude energy efficiency-improving technologies.

The CEC continues to exclude a variety of equipment types from the Prescriptive approach as previously

explained in our prior comments. Daikin had proposed a modification to **Section 140.4(a)3.A.** to include Schools and to then remove **Section 140.4(a)3.B.** This modification would have made clear the ability to use VRF and DOAS for offices and schools. CEC appears to have attempted to address this concern by adding **Section 140.4(a)3G** where; *“A space-conditioning system determined by the Executive Director to use no more energy than the systems specified in Section 140.3(a)3.”*

Daikin does not support this approach. Building owners will struggle to comply with this section as it will create additional work and add delay as designers prepare, submit and wait on the Executive Director approval. This will ultimately discourage use of VRF/DOAS and other effective equipment that is not clearly included as being Prescriptively allowed.

The need to obtain approval from the Executive Director does not provide any certainty for the application of other highly efficient equipment. The process for submittal, the specific information which needs to be provided, and the metrics for acceptance need to be included in this Rule. Clarification is required on whether approvals are project specific or may convey to similar projects, and what is the process that will be determined. The Executive Director must respond within a specific timeline from submittal to response to provide some level of certainty to stakeholders. That timeline cannot be left open ended. CEC must consider how they will process a potentially high demand for approvals for use of alternate equipment types

Daikin continues to recommend that to provide clarity, **Section 140.4(a)3.A** be modified to include Schools and then **Section 140.4(a)3.B** can then be removed. This direction is simple and provides for use of the same equipment that is appropriately sized and used today for schools.

### **EER2 and PV Sizing Concerns**

Daikin appreciates the CEC returning Equation 150.1 to the rule that was mistakenly stricken in the initial 45-Day language.

Daikin’s other comments related to the topic of EERs and PV Sizing do not seem to have been addressed. Daikin reiterates that we believe that EER2 is an irrelevant peak power management metric for Variable Speed Heat Pump technology. We believe that prescribing EER2 thresholds of 11.7 for sizing PV Systems, as currently proposed in **Table 110.2-A**, would be counterproductive to the adoption of VSHP technology and the attainment of the state’s heat pump and decarbonization targets.

As explained in detail in the Daikin comments submitted to the CEC on September 7, 2023, and again on May 9, 2024, EER2 is not a metric that in any way captures the benefits and performance of VSHPs. Daikin believes that requiring EER2 for VSHP PV System integration may slow their adoption and fail to recognize and capitalize on their inherent benefits. EER2 requirements as written could exclude VSHP, especially the cost-effective product models with moderate EER2 rating, from eligibility in this program and limit their potential to deliver greater annual energy savings and reduce energy bills.

EER2 is a metric measured at high ambient (i.e. 95F) conditions. High ambient conditions, however, represent only a small portion of time in a year across most locations in the US, albeit an important time-period from a load management perspective. The average duration that cities experienced temperature conditions between 93-97F was 1.2% of the annual hours.

As previously referenced, in California, across its 16 climate zones, based on weather data from 2017, the average number of hours over 95F is estimated to be 189 hours annually, which is about 4.4% of total cooling load hours. Some of the hotter California climate zones experience over 30% of cooling operating

hours above 90F with over 20% of cooling operating hours above 95F as well. However, we note that in a study published by the DOE that most of the products installed in homes are sized with excess cooling capacity, even in high ambient temperatures. As a result, it is expected that due to application sizing practices for HPs sold in California, they can adequately meet the cooling and heating loads, provide options for load shedding, and provide higher efficiency operation for much of its annual operation. Seasonal Energy Efficiency Ratio (“SEER2”) is a better indicator of annual energy consumption and a higher SEER2 can reflect measurable energy savings, and a reduction in GHG emissions. A higher EER2 requirement also increases the refrigerant charge size due to driving up the full load efficiency of the refrigeration system. Creating a policy that indirectly encourages the use of equipment with larger charge sizes is also directly in conflict with the fundamental premise of newly promulgated federal regulations that require the phase down the use of high Global Warming Potential (“GWP”) refrigerants (i.e., the AIM Act).

Daikin recommends that the CEC add an exception to the use of EER2 for VSHP as a metric for sizing PV systems in Sections 150.1 and 170.2 to aid in encouraging the continued adoption and growth of highly efficient VSHP technology.

Proposed additional Exceptions:

**Exception 6 to Section 150.1(c)14:** PV systems using VSHP technology.

**Exception 6 to Section 170.2(f):** PV systems using VSHP technology.

**Table 110.2-A AIR CONDITIONING AND CONDENSING UNITS – MINIMUM EFFICIENCY REQUIREMENTS**

Daikin has concerns in **Sections 110.2** relative to the proposed changes to the efficiency tables that will cause confusion, and that are in some cases technically incorrect.

CEC is proposing to remove entire tables if the requirements for all products within that table are to meet federal minimums. CEC further proposes to remove efficiency ratings and replace with “Federal Minimum” where appropriate. While we understand the difficulty CEC is trying to address in maintaining these tables as Federal requirements change, Daikin does not support their removal. We believe there is a value in referencing the actual rating requirement for the equipment to provide designers with relevant information quickly and to avoid their needing to search other locations for the data, which may be difficult to locate. Alternately, a compendium that includes all efficiency ratings could be a useful tool and be more easily updated by CEC as needed.

In the 15-day language, there remains a glaring error. In Table 110.2-A, the Condensing Unit sections incorrectly reference Federal Minimum in place of IEER. We believe that there is no Federal Minimum for this product and, as such, the prior IEER numbers should remain. Below are the line items in question.

Condensing units, air cooled	≥ 135,000 Btu/h	10.5 EER Federal Minimum <del>11.8</del> IEER	AHRI 365
Condensing units, water cooled	≥ 135,000 Btu/h	13.5 EER Federal Minimum <del>14.0</del> IEER	AHRI 365
Condensing units, evaporatively cooled	≥ 135,000 Btu/h	13.5 EER Federal Minimum <del>14.0</del> IEER	AHRI 365

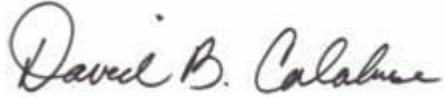
**Conclusion**

Daikin believes that Section 140.4 continues to be of concern and that our proposed modification will provide more certainty for building owners and designers. EER2 for VSHP PV System integration may slow their adoption and fail to recognize and capitalize on their inherent benefits. Lastly, we believe that the

removal of the efficiency tables and their metrics will be problematic. At a minimum, corrections are required to the tables.

We appreciate the Commissions time and strongly urge consideration and adoption of these proposals.

Sincerely,

A handwritten signature in black ink that reads "David B. Calabrese". The signature is written in a cursive style with a large initial 'D'.

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