DOCKETED	
Docket Number:	24-BSTD-01
Project Title:	2025 Energy Code Rulemaking
TN #:	255322-1
Document Title:	2025 Staff Supplement to 2025 CASE Report - Cooling Towers
Description:	N/A
Filer:	Javier Perez
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	3/28/2024 4:25:38 PM
Docketed Date:	3/28/2024

Staff Supplement to California Statewide Codes and Standards Enhancement (CASE) Team Measure Proposal - Cooling Tower CASE Report

Date: **March 28, 2024**

Pages: **3**

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Description of Proposed Regulatory Changes

The measure change proposal submitted by the CASE team and titled "Cooling Tower CASE Report" proposes to make the following changes to the 2025 Standards:

- Increase prescriptive cooling tower efficiency in climate zones 2, 4, 5, and 12 to 70 gallons per minute/horsepower (GPM/hp), climate zones 6, 7, 9, and 13 to 80 GPM/hp, and climate zones 8, 10, and 15 to 90 GPM/hp.

- Update mandatory open- and closed-circuit cooling tower requirements blowdown controls to conductivity based controls, target maximum cycles of concentration based on the recirculating water properties established in ANSI/ASHRAE Standard 189.1-2020 and document in compliance documents, require controls be programmed to not allow blowdown until one or more of the recirculating water parameter limits set in ANSI/ ASHRAE Standard 189.1-2020 is met, and add an acceptance test to verify installation and programming of controls to achieve documented cycles of concentration and overflow alarms.

Staff agrees with some of the proposed changes to Sections 110.2(e) 140.4(h)5 and 170.2(c)4Fv and have incorporated substantively similar changes into the proposed 2025 Express Terms.

Staff does not agree with some of the proposed changes to Section 110.2(e), Section 140.4(h)5, Section 170.2(c)4Fv, and Section 140.4(j).

In Section 110.2(e), staff has incorporated similar changes into the proposed 2025 Express Terms. However, the metric for conductivity recirculating water parameters was revised to micro-siemens/cm. It was confirmed that the originally proposed micro-ohms metric was the incorrect metric for this parameter.

In Section 140.4(h)5 and Section 170.2(c)4Fv, staff has updated efficiency requirements in climate zones 1, 2, 3, 4, 5, 6, 7, 8,11, 12, 13, 14, and 16, as recommended in the Cooling Tower CASE Report. In climate zones 8, 10, and 15, the efficiency requirements were updated to 80 GPM/hp instead of 90 GPM/hp.

Staff are proposing this alternative due to public feedback regarding raising cooling tower efficiencies to a level that could only be met by a small portion of cooling tower products. Lowering the required efficiency allows for more available options for builders when installing cooling tower equipment.

Staff has proposed to make no changes to Section 140.4(j) in the 2025 Express Terms.

Staff are proposing this alternative because the Cooling Tower CASE Report does not include an analysis showing that the excepted equipment proposed to be added into Section 140.4(j) will perform similarly to the required equipment in the section.

Staff Analysis and Conclusion

Staff has analyzed the submitted proposal and reached the following conclusions for the measures included in the 2025 Express Terms:

- Based on the evidence presented in the proposal, the measures, as proposed, are cost effective and the author has appropriately followed the Energy Commission's Life Cycle Cost methodology.
- Measure costs premiums presented in the proposal are reasonable and appropriate for the measure proposed.
- Measure energy savings presented in the proposal are appropriately modeled and are credible.
- Measure environmental impacts presented in the proposal are reasonable and appropriate for the measure proposed.

Staff additionally finds that the staff alternatives for Section 110.2(e), Section 140.4(h)5, Section 170.2(c)4Fv, and Section 140.4(j) fall within the analysis of the proposal and are found to be feasible and cost-effective based on the proposal's analysis for the following reasons:

- Updating the conductivity metric to micro-siemens/cm corrects an error in the proposal and does not change cost or energy usage of the measure proposal.

- Decreasing efficiency requirements from 90 GPM/hp to 80 GPM/hp will result in reduced energy savings but also reduce the cost of equipment installed.
- Removing the proposed exceptions will result in no changes to the 2025 Energy Code, including no changes to costs and energy usage.