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Staff Supplement to CASE Report #2019-NR-MECH1-F

Date: October 12, 2017

Pages: 2

Author: Mark Alatorre

Subject: Prescriptive Efficiency Requirements for Cooling Towers, 2019-NR-MECH1-F

DESCRIPTION OF PROPOSED REGULATORY CHANGES

CASE report 2019-NR-MECH1-F, Prescriptive Efficiency Requirements for Cooling Towers, proposes to make the following changes to the Standards:

- A new prescriptive requirement for higher efficiency axial fan open-circuit cooling towers in condenser water systems 900 gpm or greater. This measure will apply to newly constructed projects and new systems serving additions. Alterations would be exempted if the equipment is being mounted to an existing building. The current 2016 Title 24, Part 6 Standards' mandatory minimum efficiency for axial fan cooling towers is 42.1 gallons per minute per horsepower (gpm/hp). The 2016 ACM Reference Manual assumes an efficiency of 60 gpm/hp for a standard design cooling tower. The intent of this proposal is to add a new prescriptive efficiency requirement of 80 gpm/hp and increase the standard design efficiency used in the compliance software to 80 gpm/hp. The measure proposes this prescriptive requirement only for condenser water systems that are 900 gpm or greater (or serving chilled water plants 300 tons or greater). The proposed code change does not recommend modifications to the existing mandatory minimum efficiency requirements.
- The proposal recommends using the existing test procedure and rating conditions to evaluate cooling tower efficiency, which are listed in Table 110.2-G Performance Requirements for Heat Rejection Equipment. These procedures are the Cooling Tower Institute's (CTI) standards: CTI ATC-105 and CTI STD-201 under the standardized conditions of 95°F entering water temperature, 85°F leaving water temperature, and 75°F entering air wet-bulb temperature.

Staff agrees with the proposed changes to Section(s) 140.4(h), and have incorporated substantively similar changes into the proposed Express Terms.

STAFF ANALYSIS AND CONCLUSION

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

- Based on the evidence presented in the CASE Report, the measures, as proposed, appear to be cost effective and the author appears to have appropriately followed the Energy Commission's Life Cycle Cost methodology.

- Measure costs premiums presented in the CASE Report appear reasonable and appropriate for the measure proposed.

- Measure energy savings presented in the CASE Report appear to have been appropriately modeled and appear credible.