

## **Agenda Item 5h COMMERCIAL FOOD SERVICE EQUIPMENT VOLUNTARY MEASURES**

- **Statement of specific purpose, problem, rationale and benefits:**

While CALGreen includes existing voluntary provisions for commercial food service equipment, model codes such as IAPMO GPMCS, IGCC, and ASHRAE 189.1, as well as voluntary requirements in LEED (version 4.0), ENERGY STAR<sup>®</sup>, and WaterSense<sup>®</sup>, include more robust water efficiency model standards for the equipment types presented below. Given that model codes and standards are developed with input from a wide representation of industry stakeholders, including manufacturers, water utilities, and advocacy organizations, they are considered to be feasible and well-vetted. Furthermore, the harmonization of model codes and voluntary standards is important as industry stakeholders strive to establish water efficiency standards that reduce the complexity associated with multiple, and sometimes conflicting, standards. The voluntary CALGreen measures proposed by the Statewide Electricity Utility Codes and Standards Team aim to bring California's green building code in line with ENERGY STAR and WaterSense so as to 1) reduce the number of conflicting codes and standards, which will help increase code compliance, and 2) incentivize the adoption of water efficient commercial food service equipment in California.

Commercial kitchen equipment can use significant quantities of water. For example, connected steamers use about 40 gallons of water per hour.<sup>1</sup> In contrast, connectionless steamers typically use less than 10% of the water used by connected steamers.<sup>2</sup> While individual systems vary, this technology offers significant water efficiency advantages over connected equipment. Combination ovens also use steam to cook food. The oven can operate in steaming mode, convection mode or both. The water usage of combination ovens is similar to connected steamers at about 40 gallons of water per hour<sup>3</sup> and typically over 100,000 gallons per year.

Ice makers and pre-rinse spray valves can also use a significant amount of water. For example, ice makers can use between 15 gallons of water (air-cooled machines) to 180 gallons of water (water-cooled machines) to make 100 pounds of ice.<sup>4</sup> In addition, pulping systems and strainers, which are used for food waste disposal, require a constant flow of running water through the system while in operation.

The following section contains proposed voluntary code language for food steamers, dishwashers, ice makers, pre-rinse spray valves, and pulpers based on ENERGY STAR and WaterSense.

For additional information on commercial food service equipment and example codes, please see the attachment "Commercial Food Service Equipment Mandatory Measures: Additional History and Rationale."

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<sup>1</sup> Fisher-Nickel, Inc. (2005). "Evaluating the Water Savings Potential of Commercial "Connectionless" Food Steamers." [http://www.allianceforwaterefficiency.org/Commercial\\_Food\\_Service\\_Introduction.aspx?terms=steamers](http://www.allianceforwaterefficiency.org/Commercial_Food_Service_Introduction.aspx?terms=steamers).

<sup>2</sup> Alliance for Water Efficiency. (2010). "Food Steamers Introduction." <http://www.allianceforwaterefficiency.org/1Column.aspx?id=642>.

<sup>3</sup> Food Services Technology Center. (2014). "Combination Ovens." <http://www.fishnick.com/savewater/appliances/combinationovens/>.

<sup>4</sup> SoCal Water Smart. "Air-Cooled Ice Machines." <http://socalwatersmart.com/index.php/qualified/air-cooled-ice-machines>.

- **Proposed code language for the 2015 Triennial Code Adoption Cycle**

**LEGEND FOR EXPRESS TERMS**

1. New California amendments: All such language appears *underlined and in italics*.
2. Repealed text: All such language appears in ~~strikeout~~.

**NONRESIDENTIAL VOLUNTARY MEASURES**

**SECTION A5.303  
INDOOR WATER USE**

**A5.303.3 Appliances and fixtures for commercial application.** Appliances and fixtures shall meet the following:

1. Clothes washers shall have a maximum Water Factor (WF) that will reduce the use of water by 20 percent below the California Energy Commission' WF standards for commercial clothes washers located in *Title 20 of the California Code of Regulations*.
2. Dishwashers shall meet the following water use standards:
  - a. Residential – ENERGY STAR
    - i. Standard Dishwashers – 4.25 gallons per cycle.
  - b. Commercial – ~~refer to Table A5.303.~~ Shall be in accordance with ENERGY STAR requirements. Refer to Table A5.303.
3. Ice makers shall be air cooled ~~and shall be in accordance with the following ENERGY STAR requirements: Ice makers producing cubed-type ice shall meet the water efficiency level of 20 gallons per 100 pounds of ice for ice making head and remote condensing unit type machines, and 25 gallons per 100 pounds of ice for self-contained unit type machines. Ice makers producing nugget and flake ice shall meet the water efficiency of 15 gallons per 100 pound of ice.~~
4. Food steamers shall be connectionless or boilerless ~~and shall consume no more than 2 gallons of water per pan per hour, including condensate water, for batch type steamers, and no more than 5 gallons of water per pan per hour, including condensate water, for cook to order steamers.~~
5. [BSC] The use and installation of water softeners that discharge to the community sewer system may be limited or prohibited by local agencies if certain conditions are met.
6. Combination ovens shall ~~not consume more than 10 gph (38 L/h) in the full operational mode.~~ have a maximum water use of 1.5 gallons per hour per pan, including condensate water.

7. Commercial pre-rinse spray valves shall be in accordance with the EPA WaterSense requirement of a maximum flow rate of 1.28 gpm at 60 psi.<sup>5</sup> In addition, pre-rinse spray valves shall manufactured on or after January 1, 2006 shall function at equal to or less than 1.6 gpm (0.10 L/s) at 60 psi (414 kPa) and
- Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate.
  - Be equipped with an integral automatic shutoff.
  - Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gpm (0.08 L/s) or less.
8. No more than 2 gpm of freshwater shall be used in food waste pulping systems.

**TABLE A5.303.3: COMMERCIAL DISHWASHER WATER USE**

Type	High-Temperature - Maximum Gallons Per Rack	<u>Low-Temperature – Maximum Gallons Per Rack</u>	Chemical – Maximum Gallons Per Rack
<u>Conveyor Single Tank Conveyor</u>	0.70 (2.6 L)	$\leq 0.79$ (3 L)	0.62 (4.4 L)
<u>Multiple Tank Conveyor</u>	$\leq 0.54$ (2 L)	$\leq 0.54$ (2 L)	
<u>Stationary Single Tank Door</u>	<del>0.95 (3.6 L)</del> $\leq 0.89$ (3.4 L)	$\leq 1.18$ (4.5 L)	1.16 (2.6 L) (BSC) 2.26 (8.6 L) [DSA-SS]
<u>Under eCounter</u>	<del>0.90 (3.4 L)</del> $\leq 0.86$ (3.3 L)	$\leq 1.19$ (4.5 L)	0.98 (3.7 L)
<u>Pot, Pan, and Utensil</u>	$\leq 0.58$ GPSE	$\leq 0.58$ GPSE	
<u>Single Tank Flight Type</u>	$GPH \leq 2.975x + 55.00$	$GPH \leq 2.975x + 55.00$	
<u>Multiple Tank Flight Type</u>	$GPH \leq 4.96x^{***} + 17.00$	$GPH \leq 4.96x + 17.00$	

- GPSE = gallons per square foot of rack
- GPH = gallons per hour
- X = maximum conveyor speed (feet/min as verified through NSF 3 certification) x conveyor belt width (feet)

<sup>5</sup> Note: Where pre-rinse spray valves with maximum flow rates of 1.0 gpm (0.06L/s) or less are installed, water pressure supplying the pre-rinse spray valves of less than 30 psi (207 kPa) may be inadequate.