



Memorandum

Date: January 11, 2019

To: Henry Liu, PG&E

CC: Chan U Paek, SCG; Paul Pruschki, SDG&E; Cassie Cuaresma, SCE

From: Peter Biermayer- Utilities Engineer, Industrial/ Agricultural Programs and Portfolio Forecasting Section, Energy Efficiency Branch, Energy Division, CPUC

Subject: Non-standard Disposition for the commercial electric and gas steam cooker workpaper SWFS005-01

1. Summary

Provided here is notification to all Program Administrators (PAs) that a statewide workpaper SWFS005-01 for commercial food services electric and gas steam cooker requires revisions, as needed based on a review of testing data, with resubmission by September 1, 2019 to facilitate the disposition review and approval cycle for 2020 implementation.

2. Background

A steam cooker ("steamer") provides a fast cooking option for preparing large quantities of food, while retaining vital nutrients in the cooked product. In addition, a steamer can be used to gently heat food products. Steamers are available in a variety of configurations, including countertop models, wall mounted models, and floor models mounted on a stand, pedestal, or cabinet style base. A steamer may consist of one to four stacked cavities, though two-compartment steamers are the most prevalent in the industry. Each cavity typically accommodates a standard 12-inch x 20-inch hotel pan.

Steam is produced by a steam generator located within (or directly connected to) the cooking cavity. The steam is produced at (or slightly above) the compartment operating pressure (i.e., atmospheric pressure). This configuration is not used for pressure steamers. A steamer may produce steam from boiling water poured directly into the cooking compartment prior to operation (this is the simplest form of an internal steam generator, typically referred to as a "connectionless" steamer). The electric or gas heaters are typically located directly beneath the compartment floor.

Efficient steam cookers offer shorter cook times, higher production rates, and reduced heat loss due to better insulation and more efficient steam delivery systems. In addition to saving energy, efficient steam cookers also save water - 90 percent or more when compared with standard steam cooker models (using on average 3 gallons of water per hour for efficient steam cookers versus 40 gallons of water per hour for standard models).

Steamer performance (energy use and demand) is determined by the American Society for Testing and Materials (ASTM) Standard Test Method for the Performance of Steam Cookers (F1484)¹ in an approved and qualified laboratory. The ASTM Standard Test Method is the industry standard for quantifying the efficiency and performance of steamers.

3. Critical Review Issues

Additional information and analysis are required to support the ex ante savings values in the statewide workpaper. The critical issues are:

- Update the equipment performance baseline and eligibility requirements
- Calculations and Alignment with Energy Star

3.1. Update Equipment Performance Data

The electric (and gas) steamer measures are supported by laboratory testing data of commercial steamers tested at the Food Service and Technology Center (FSTC)¹, based upon the calculation methods in ASTM Standard Test Method for the Performance of Steam Cookers (F1484). This data source consists largely of program qualified units with limited testing data for baseline units. The SWFS005-01 indicates that the source for the key baseline characteristics is a proprietary database and data drawn from a sample of economy-grade equipment tested by the FSTC. These data appeared to be obtained from the Commercial Cooking Appliance Technology Assessment in 2002.

There is a need to evaluate the appropriateness of this legacy data source using a more recent set of data. The update process steps should include:

- Assemble all available testing data from the FSTC and the most recently available data. Combine the data into a comprehensive database including useful parameters characterizing the steamers, including: Steamer Type, Pan Configuration, Cooking Energy Efficiency, Idle Energy Rate, and so forth. Compile the data in a spreadsheet to support analysis.

For each category summarize the sample size, min, max, median, average, and examine each sample for trends, and clusters or patterns.

Summarize the findings addressing electric steam cooker characteristics in a memo and submit with the revised workpaper including all the underlying data and analysis findings for inspection by reviewers.

¹ <https://fishnick.com/about/overview/> The FSTC has developed over 40 Standard Test Methods for evaluating commercial kitchen appliance and system performance. It is operated by Frontier Energy and funded by PG&E.

- Assemble and review secondary sources that can contribute to knowledge surrounding the performance and the differential between program and base case equipment. The secondary resource shall include, but are not limited to:
 - Energy Star sources
 - California Energy Commission certified appliance database (for information on idle energy rates) and/or other pertinent data sources

These resources and findings and conclusions should be summarized in a second memo that addresses any contradiction between testing-based findings/calculations noted above, and these other secondary sources.

- Reformulate baseline efficiencies and eligibility requirements

After gathering the primary and secondary data, the baseline efficiencies and eligibility requirements should be reformulated to:

- Identify any substantive distinctions in steamers as a function by configuration following with consistent savings calculations and/or equipment eligibility.
- Revise eligibility efficiency thresholds consistent with program objectives.
- Revise implementation application data collection process as necessary to define configuration for each application
- The findings and conclusions should be summarized in a third memo that addresses the final values and rational for the baseline and eligible measure requirements.

3.2. Workpaper Calculations and Alignment with EnergyStar

Energy Star (ES) stipulates maximum idle rate based on the pan capacity²; however, there seem to be a few electric steam cookers within the specifications workbook, provided in support of the workpaper ("SWFS005-01 MeasureDataSpec - Comm Steamer r1.7"), do not appear to meet the requirements. The test data average that was used to validate utility workpaper assumptions needs to remove these outliers for the purposes of characterizing EE units.

Excluding the one observation above, there were no notable red flags surrounding workpaper calculations and Energy Star assumptions and their mutual alignment.

4. Direction

Based on the critical review items, the IOUs are directed to conduct the indicated research, revise the workpaper, and resubmit for 2020 implementation.

4.1. Revise Baseline and Eligibility Requirements

The IOUs are directed to revise the baseline and eligibility requirements for steamers consistent with the findings and conclusions of the research outlined in Section 3. In order to ensure timely completion of the workpaper, the IOUs shall formulate and submit a workpaper workplan by January 31, 2019 with a schedule that results in a September 1, 2019 revised workpaper submission. The workplan will identify

²https://www.energystar.gov/products/commercial_food_service_equipment/commercial_steam_cookers/key_product_criteria

mutually agreed upon interim delivery dates for each memo so that these can be reviewed as the work is completed.

The final workpaper submission should incorporate the data, findings, and conclusions from the memos and complete sets of source data as described in Section 3 of this disposition.

4.2. Consistency in Calculations

The PAs are directed to review the outliers within the supporting data used to validate the workpaper calculations and remove these from the test data averages for the purposes of characterizing EE units.

The PAs are also directed to document workpaper assumptions and inputs in the workpaper or in supporting calculation spreadsheets.

4.3 Stakeholder communication strategy

The PAs shall propose a communication strategy for their stakeholders. This strategy should be comprehensive to ensure all information is timely and easily accessible. Lack of communication or delayed communication can have unintended market impacts that should be avoided.