Work Paper SCE17CC002

**Revision 0**

**Short Form**

**Southern California Edison**

**Commercial Electric Steamers**

**Introduction**

This short form workpaper documents (WP) the values adopted from PGE’s WP entitled “Commercial Steam Cooker-Electric and Gas” (PGECOFST104 R6). SCE adopts all the values in PGECOFST104 R6 – “Commercial Steam Cooker-Electric and Gas” with no changes.

# Document Revision History

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| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Summary of Changes** |
| 0 | 11/29/2017 | Arvind Subramanya (TRC) | * Transferred savings values to SCE Calculation template for the 2017 program year. * Mid-stream program was added in this revision of the workpaper. * All 16 climate zones were used in this version. * Only electric measures from PGECOFST104 R6 are included in this version. |

**Measure Summary**

Table 1: Measure Summary Table

| **Section** | **Value** |
| --- | --- |
| **Summary & Purpose** | This short form workpaper documents ex-ante load impacts and cost-effectiveness values for Commercial Electric Steamers. The scope includes the following measure category:  **FS-38502:** The commercial steam cooker must meet ENERGY STAR® specifications for energy efficiency or must have a tested heavy load potato cooking energy efficiency of 50% utilizing ASTM Standard F1484.  The DEER database does not contain information on energy use or savings for an energy-efficient electric commercial steam cooker measure. The only reference in DEER for Commercial cooking equipment is for Estimated Useful Life. This Work Paper is based on the calculation methods in ASTM Standard Test Method for the Performance of Steam Cookers (F1484), which uses measured data under preheat, idle, and heavy-load cooking conditions. |
| **1.1 Measure & Baseline** | Please refer to Attachment #1 Calculation Templates for the list of measure solution codes and baseline condition. |
| **1.2 Technical Description** |  |
| **Measures** | **FS-38502:** Steam cooker, ENERGY STAR® qualified (PGE ID - F108)  The commercial steam cooker must meet ENERGY STAR® specifications for energy efficiency or must have a tested heavy load potato cooking energy efficiency of 50% utilizing ASTM Standard F1484. |
| **Code for All Measures** | **California Title 20:** State of California Title 20 Appliance Efficiency Regulation has a category for cooking appliances, but commercial steam cookers are not included.  **California Title 24:** There are no State of California Title 24 Efficiency Regulation requirements for commercial steam cookers.  **Federal:** There are no Federal energy efficiency requirements for commercial steam cookers. |
| **Requirements** | * This measure must include new commercial steam cookers that are ENERGY STAR® qualified or have a cooking-energy efficiency of ≥ 50% as per Table 1 of the PGECOFST104 R6. The qualifications were developed by the California Investor Owned Utilities: <http://www.fishnick.com/saveenergy/rebates/2015_CFS_Rebate_Criteria-updated_20150714.pdf>. * Used or rebuilt equipment is not eligible. * Customers must provide proof that the appliance has a cooking-energy efficiency that meets the requirements listed below. |
| **1.3 Installation Type and Delivery Mechanisms** |  |
| **Installation Type** | Replace on Burnout (ROB)  New Construction (NEW/NC) |
| **Delivery Mechanisms** | Financial Support: Down-Stream Incentive – Deemed  Mid-Stream Programs: Mid-Stream Incentive |
| **1.4.1 DEER Data** |  |
| **Net-Gross-Ratio** | NTD ID: Com-Default>2yrs  NTG Value: 0.6 |
| **Effective and Remaining Useful Life** | EUL ID: Cook- ElecStmCooker  Source: DEER 2014  EUL: 12 Years; RUL: 4 Years |
| **Section 2. Calculation Methodology** |  |
| **Energy savings/Peak Demand Reduction – All Measures** | The DEER database does not contain information on energy use or savings for an energy-efficient electric commercial steam cooker measure. The only reference in DEER for Commercial cooking equipment is for Estimated Useful Life. This work paper is based on the calculation methods in ASTM Standard Test Method for the Performance of Steam Cookers (F1484), which uses measured data under preheat, idle, and heavy-load cooking conditions.  The ASTM performance parameters for baseline equipment were drawn from a sample of economy grade equipment tested by the Food Service Technology Center and is summarized in Table 6 of PGECOFST104 R6. The baseline steam cooker data is based on Gas Boiler Based Atmospheric steamers and Electric Steam Generator steamers. The measure case data was drawn from the list of commercial steamers that have been tested by IOU testing laboratories and is summarized in Table 7 of PGECOFST104 R6.  The demand reduction estimation is based on measured data for standard efficiency electric steamers and for high efficiency steamers that meet Energy Star requirements (greater than 50% cooking efficiency). The measured data are derived from tests conducted under ASTM Standard Test Method for the Performance of Steam Cookers (F1484).  The UES (Unit Energy Savings) savings were adjusted based on Decision 11-07-030, and comments in Attachment A, which stated “Energy Division believes that operating hours, food production rates and baseline efficiencies contribute to overly optimistic UES calculations and recommend a 30% reduction in UES values”. Therefore the final claimable UES numbers are adjusted down 30% and provided in Table 10 of PGECOFST104 R6.  Please refer to Section 2 of PGECOFST104 R6 for additional details and examples. |
| **Section 3. Load Shapes** | DEER:Indoor\_Non-CFL\_Ltg  The load shape for commercial electric steamers differ among food service facilities depending on daily menu variations, hours of operation, serving periods, day-of-week, and facility location. |
| **Section 4. Costs** |  |
| **Section 4.1 Base and Measure Costs** | Please refer to Attachment #1 Calculation Templates for detailed baseline and measure costs. |

**Attachments:**

1. **A1 SCE17CC002.0 Calculation Workbook**